

Open Research Online

The Open University's repository of research publications
and other research outputs

The eating disorder belief questionnaire in adolescent girls and predictors of behaviour, and weight, shape and eating concerns

Thesis

How to cite:

Bell, Caroline (2001). The eating disorder belief questionnaire in adolescent girls and predictors of behaviour, and weight, shape and eating concerns. PhD thesis The Open University.

For guidance on citations see [FAQs](#).

© 2001 The Author



<https://creativecommons.org/licenses/by-nc-nd/4.0/>

Version: Version of Record

Link(s) to article on publisher's website:

<http://dx.doi.org/doi:10.21954/ou.ro.0000e337>

Copyright and Moral Rights for the articles on this site are retained by the individual authors and/or other copyright owners. For more information on Open Research Online's data [policy](#) on reuse of materials please consult the policies page.

oro.open.ac.uk

**The Eating Disorder Belief Questionnaire in Adolescent Girls, and Predictors
of Behaviour, and Weight, Shape and Eating Concerns**

Caroline Bell, M.A. (Honours)

Submitted in partial fulfilment of the requirements of the Open University/British
Psychological Society for the degree of Doctor of Clinical Psychology

October 2001

The British Psychological Society

ACKNOWLEDGEMENTS

Firstly I would like to thank all the participants in the study, for their time and enthusiasm. I would also like to thank Miss Blake and Miss White from Didcot Girls' School and Peers School respectively for their time and support in administering the research.

I am very grateful to Myra for her support and constructive feedback throughout, from developing ideas to the final write-up, and to Paul Griffiths for his (as always) very thorough statistical advice.

Support from family helped me to persevere, particularly my Grandfather who unfortunately isn't here to see me come out the end of the tunnel. Last but not least I'd like to say a huge thank you to my friends for their support both on the road to training and over the past three years.

ABSTRACT

Objectives

The psychometric properties of the Eating Disorder Belief Questionnaire (EDBQ) in adolescent girls were analysed (stage 1). The influence of various sociocultural factors (related to family, peers and the media) on girls' eating disorder related behaviours and symptoms were also investigated (stage 2).

Method

In stage 1 eighty-three girls completed the EDBQ and other measures of eating pathology, depression and self-esteem. In stage 2 thirty-eight girls and their mothers participated. The mothers completed the EDBQ, and measures of dietary restraint and involvement in their daughter's weight/shape. Girls completed the Eating Attitudes Test, and measures of parental, peer and media influence, and a measure of their awareness and internalisation of societal standards of attractiveness.

Results

The EDBQ had a different factor structure, with one general factor emerging. The entire scale had convergent validity. Its criterion-related validity could not be tested. Several of the sociocultural factors were related to girls' EAT score. The belief that being thinner would make boys like them was the most significant predictor (particularly in younger girls). For older girls, the internalisation of societal standards was the strongest predictor, although a large proportion of variance in EAT score was left unaccounted for.

Conclusions

The EDBQ has different psychometric properties in adolescent girls, whose beliefs appear undifferentiated. The belief that being thin would make boys like them was a strong influence on the young girls' EAT score. For the older girls, internalisation of societal standards was important, however other (untested) factors also seem important.

CONTENTS

1.0 INTRODUCTION	
1.1 Overview	1
1.2 Eating disordered attitudes & behaviours in adolescent girls	1
1.2.1. Prevalence	1
1.2.2. Implications	2
1.3. Cognitive models of eating disorders	3
1.3.1. Anorexia nervosa	3
1.3.2. Bulimia nervosa	5
1.3.3. The role of core beliefs (schemata)	6
1.4. Empirical evidence for cognitive models of eating disorders	7
1.4.1. Dysfunctional reasoning & information processing	7
1.4.2. Cognitive content	7
1.5. Sociocultural perspectives on eating disorders	10
1.5.1. Overview	10
1.5.2. Models of sociocultural influence	11
1.5.3. Familial influences	12
1.5.4. Peer influence	13
1.5.5. Media influence	14
1.5.6. Awareness & internalisation of societal ideals	15
1.6. Methodological limitations	17
1.7. Summary of literature review	17
1.8. Aims of current study	19
1.8.1. Research questions	19
1.8.2. Hypotheses	19
2.0 METHOD	
2.1. Design	21
2.2. Ethics approval	21
2.3. Participants	21
2.4. Measures – Stage 1	21
2.5. Measures – Stage 2	24
2.5.1. Mothers	24
2.5.2. Girls	25
2.6. Procedure	28
3.0 RESULTS	
3.1. Data analysis	29
3.2. Response rate	29
3.3. Stage 1 descriptive data - demographics	29
3.4. Stage 1 descriptive data - disordered eating & other pathology	31
3.5. Stage 1 hypothesis testing	32
3.6. Stage 2 descriptive data – mothers - demographics	34
3.7. Predictor variable measures - mothers	34
3.8. Stage 2 descriptive data – girls	35
3.9. Predictor variable measures - girls	35
3.10. Stage 2 hypothesis testing	37
3.10.1. Correlation analyses	38
3.10.2. Multiple regression analyses	40
4.0. DISCUSSION	
4.1. Overview	42
4.2. Summary of results	42

4.3. Limitations of the study	43
4.4. Interpretation of the results	
4.4.1. Validity of the EDBQ in adolescent girls	49
4.4.2. Influence of maternal modelling	50
4.4.3. Influence of parental involvement	51
4.4.4. Peer influence	52
4.4.5. Media influence	54
4.4.6. Influence of awareness & internalisation of societal ideals	54
4.5. Clinical implications	
4.5.1. Use of the EDBQ	56
4.5.2. Treatment of eating disorders	56
4.5.3. Prevention programmes	57
4.6. Suggestions for future research	58
4.7. Conclusions	60
5.0. REFERENCES	61
6.0. APPENDICES	68

1.0 INTRODUCTION

1.1 Overview

This dissertation investigates eating disorder related attitudes and behaviours in adolescent girls. The introduction firstly discusses the prevalence of such attitudes and behaviours, and their implications. Cognitive theories of anorexia nervosa and bulimia nervosa are outlined, followed by a review of studies investigating some of their implications. The sociocultural perspective on eating disorders is then outlined. Research on the influence of the family, peers, and the media on eating disorder related attitudes and behaviours is then discussed. Methodological limitations of previous studies are highlighted, followed by a summary of the literature review. Finally the aims of the current study are outlined in the research questions and hypotheses.

1.2 Eating disordered attitudes & behaviours in adolescent girls

1.2.1 Prevalence

Research suggests that up to 3% of the female adolescent population may suffer from eating disorders such as anorexia or bulimia nervosa (Striegel-Moore & Cachelin, 1999). This is significant, as eating disorders can develop into chronic conditions, and anorexia nervosa has an estimated mortality rate of around 0.5% per year (Palmer, 2000). Although most adolescent girls do not suffer from eating disorders, evidence suggests that many of them display some of the symptomatic eating attitudes and behaviours (sometimes known as “partial syndrome eating disorders”). These partial syndrome disorders are estimated to occur in up to 10% of American adolescent females (Shisslak, Crago, Gray, Estes, McKnight, Parnaby, Sharpe, Bryson, Killen & Barr Taylor, 1998).

High rates of eating disorder related behaviours and attitudes e.g. dieting and body dissatisfaction have been reported among adolescent girls (French, Peterson, Story, Anderson, Pederson Mussell & Mitchell, 1998). French et al describe a survey of high-school girls, of whom 62% had dieted in the past year, 30% reported a history of binge eating, 12% reported vomiting to control their weight, and 62% were unhappy

with their weight. Hill, Oliver & Rogers (1992) found high dieting motivation levels and low body esteem in 14-year old girls, despite 40% of the girls being within normal weight limits. In a community survey, P. Cooper & Goodyer (1997) found significant weight and/or shape concerns in almost 20% of 11- to 16-year old girls sampled. Amongst some of the older girls, these concerns were associated with disturbed eating habits on a par with those of someone with bulimia nervosa. Differences have been found between pre-and post-menarchial girls, with post-menarchial girls more likely to be dieting and to understand clearly what 'dieting' actually means (Abraham & O'Dea, 2001). Before a girl's first menstrual period, there is quite a rapid increase in height, weight and body fat. It has been hypothesised that this may cause tension between the cultural ideal of female attractiveness (valuing thinness) and the girl's actual size and shape (Striegel-Moore & Cachelin, 1999). This may then lead to body dissatisfaction. Support for this hypothesis comes from studies reporting lower body-esteem in pubertal compared to pre-pubertal girls (e.g. Conner, Martin, Silverdale & Grogan, 1996).

1.2.2 Implications

The high prevalence of weight/shape concerns and dieting in adolescent girls is concerning for several reasons. As will be discussed later, concerns about weight/shape are central to cognitive formulations of eating disorders. Dieting (particularly the early onset of repeated dieting) is commonly accepted as a risk factor (e.g. Smolak & Levine, 1996), and very often precedes eating disorder symptoms (Polivy & Herman, 1985). P.Cooper & Goodyer (1997) suggested that there might be a progression from shape/weight concerns to disordered eating behaviour in some girls as they get older. Those who are dissatisfied with their weight/shape and choose to diet may therefore place themselves at increased risk for developing eating disorders. In one study, fifteen-year old girls who were dieting were eight times more likely than non-dieters to later be diagnosed with eating disorders (Patton, Johnson-Sabine, Wood, Mann & Wakeling, 1990). The significant physical and psychological changes that occur during adolescence may be affected by weight restriction. Health problems e.g. retardation of growth, development, mental functioning and reproductive function are possible consequences (Mallick, 1983). There is some evidence to support this.

Delayed puberty and short stature were reported in girls aged 9 to 14 who had restricted their calorie intake (Pugliese, Lifschitz, Grad, Fort & Marks-Katz, 1983). Sub-clinical levels of dieting and body dissatisfaction may also represent a risk for depression (Striegel-Moore & Cachelin, 1999), with over 60% of a sample of adolescent girls described as "extreme dieters" reporting high levels of depression and anxiety (Patton, Carlin, Shao & Hibbert, 1997).

It is generally accepted that eating disorders are multidimensional (e.g. Garfinkel & Garner, 1982), involving an interplay between social, familial, personal and biological factors. Different theoretical models of eating disorders have been developed. Two important approaches are the cognitive and sociocultural models, both of which will now be discussed.

1.3 Cognitive Models of Eating Disorders

Cognitive theories have been proposed for anorexia nervosa (Garner & Bemis, 1982; Fairburn, Shafran & Cooper, 1999) and bulimia nervosa (Fairburn, Cooper, & Cooper, 1986). Essentially, cognitive models propose that eating disorder symptoms are maintained by characteristic beliefs about weight and shape. The meanings of weight and shape are regarded to be more elaborated, over-inclusive, inflexible, idiosyncratic, emotionally charged and personally relevant for individuals with eating disorders (Vitousek & Hollon, 1990). The consequences of these beliefs include leading individuals to engage in eating-disordered behaviour, and to process information and interpret situations according to particular cognitive biases (Bemis-Vitousek & Orimoto, 1993). These models will now be discussed.

1.3.1 Anorexia nervosa (AN)

The theory of Garner & Bemis (1982) is based on Beck's (1976) theory of emotional disorders, and is commonly used to guide cognitive therapy for AN. According to the model, self-worth in someone with AN is typically assessed in terms of their weight and shape, within a context of feeling inadequate in other areas of functioning. Initial weight loss is both positively reinforced by the sense of control it engenders, and

negatively reinforced through the avoidance of an aversive stimulus (i.e. fatness). This leads to further attempts to avoid gaining weight and control eating. The belief "It is essential that I become thin" is regarded as central, as it gives rise to underlying assumptions and automatic thoughts regarding the desirability of weight loss and avoidance of eating. These then drive behaviours such as severe dietary restriction and overcompensation through exercise.

The tendency for people with AN to gauge their self-control and self-worth by how well they control their eating and weight/shape is central to Fairburn et al's (1999) model. Dietary restraint is hypothesised to be initiated in individuals where there is a need for self-control, in a context of low self-worth. Restraint and its consequent weight loss increases the sense of self-control and self-worth, therefore is positively reinforced. The physiological sequelae of severe restriction (e.g. heightened satiety) and behaviours (e.g. hypervigilant body checking) can be perceived as threats to control over eating, weight and shape. This leads to an intensification of restriction.

Garner & Bemis (1985) outline a model of therapy for AN. The procedures recommended are adapted from those of Beck (e.g. Beck, 1976). The central assumption is that the disorder is maintained by distorted/maladaptive thinking. Therapy aims to modify these cognitive processes. A common thinking distortion is dichotomous reasoning ("black and white thinking"). This can e.g. lead to food being categorised as 'good' or 'bad'. Therapy aims to help individuals recognise such distortions, examine their consequences, and explore their validity. Garner & Bemis (1985) also recommend strategies for improving self-esteem, through e.g. the modification of related underlying assumptions. Evidence regarding the efficacy of cognitive therapy in AN is limited (due to a lack of studies), possibly due to the disorder's complexity, and the generally longer treatment required (Wilson & Fairburn, 1993).

1.3.2 Bulimia nervosa (BN)

As in theories of AN, Fairburn et al's (1986) model regards attitudes about weight and shape as central to the maintenance of BN. Individuals with BN also tend to evaluate their self-worth in terms of their shape and weight, seeing thinness as attractive and desired. These assumptions are termed dysfunctional because they are rigid and extreme, and hold excessive personal significance.

The absolute and exaggerated nature of these assumptions is considered to reflect dysfunctional reasoning styles, such as dichotomous thinking and over-generalisation (e.g. that eating one unplanned biscuit means they cannot control their eating at all). The assumptions are expressed through the individual's thoughts, which have become habitual (thus automatic) and are not assessed as to their validity. The automatic thoughts are regarded as maintaining the eating disordered behaviours. Bingeing episodes are thought to occur when an impossibly strict dieting regime is broken, interpreted as a complete loss of control, and control over eating is temporarily abandoned. Thoughts about the feared consequences of the binge (e.g. "I'll gain weight") then lead to compensatory behaviours e.g. purging.

Cognitive behavioural therapy (CBT) is widely regarded as the treatment of choice for BN, and is based on Fairburn et al's (1986) model. The main aims are the modification of the dysfunctional automatic thoughts and underlying assumptions regarding the personal importance of body shape and weight. Traditional cognitive therapy techniques e.g. monitoring and challenging negative automatic thoughts and assumptions are employed in addition to behavioural strategies such as stimulus control. In controlled studies, significant reductions in the frequency of bingeing and vomiting are found in those treated with CBT, however it is noteworthy that up to half may continue to display symptoms after therapy and at follow-up (M. Cooper, 1997).

1.3.3 The role of core beliefs (schemata)

Vitousek & Hollon (1990) highlighted the importance of self-schemata in eating disorders, which are not discussed in detail in the theories discussed above. Self-schemata are defined as

‘...cognitive generalisations about the self, derived from past experience, that organise and guide the processing of self-related information contained in the individual's social experiences.’ (Markus, 1977, p.64)

Weight related self-schemata are considered to represent the specific psychopathology of AN and BN, where weight and shape become the primary means of assessing personal worth (Vitousek & Hollon, 1990).

Guidano & Liotti (1983) discussed the role of cognitive structures relating to personal identity in AN. These are the beliefs/rules that the individual lives by. In AN, personal identity is commonly characterised by beliefs of failure and ineffectiveness. For recovery, intervention at this underlying belief level is considered essential. As highlighted by M.Cooper (1997), the content of both self-schemata and personal identity structures appears to correspond to what Young (1994) termed core beliefs. These beliefs give rise to underlying assumptions, which then give rise to automatic thoughts as discussed previously.

Recently, researchers have empirically tested aspects of the cognitive models, although this process remains at an early stage. The central components of cognitive models of psychological disorders are dysfunctional reasoning styles and information processing errors, automatic thoughts, underlying assumptions and core beliefs. These were first outlined in Beck's (1976) theory of emotional disorders. The evidence relating to these aspects in eating disorders will now be discussed.

1.4 Empirical Evidence for Cognitive Theories of Eating Disorders

1.4.1 Dysfunctional reasoning and information processing

A few studies have found that people with BN report a higher frequency of cognitive distortions such as dichotomous thinking in relation to concerns about eating and weight than controls, at both the automatic thought and underlying assumption level (e.g. Franko & Zuroff, 1992). Selective attention experiments (using the Stroop paradigm) have found that women with AN or BN are slower to colour-name words relevant to their concerns than control women. Selective memory experiments have found that patients with eating disorders have better recall for food and weight related information (for a review see M. Cooper, 1997). This evidence suggests the presence of dysfunctional reasoning styles and information processing biases in people with eating disorders, however more studies are required.

1.4.2 Cognitive content

1.4.2.1 Self-statements/automatic thoughts

The presence of self-statements/automatic thoughts reflecting concern with food, eating, weight and shape is an important implication of cognitive models, and has gained some empirical support. Questionnaire and experimental studies have reported high levels of automatic thoughts centred on food, eating, weight and shape in people with eating disorders compared to control group participants (M.Cooper, 1997). For example, M.Cooper & Fairburn (1992) found that while performing behavioural tests, patients with eating disorders verbalised more negative self-statements about eating, weight and shape compared to two control groups (containing non-eating disordered and dieting individuals). There were also differences between individuals with different eating disorders. People with AN verbalised more concerns about eating, while those with BN expressed more weight and shape based concerns.

1.4.2.2 Underlying assumptions

Studies have found that people with eating disorders score higher than controls on self-report measures investigating assumptions reflecting concern with food, eating, weight and shape (M.Cooper, 1997). In one

study (M.Cooper, Todd & Wells, 1998), women with eating disorders expressed assumptions that were conditional ("if...then..." statements), and expressed relationships between negative self-beliefs and weight, shape and eating. Measures e.g. the Mizes Anorectic Cognitions Scale (MAC; Mizes & Klesges, 1989) have been developed to assess assumptions. The MAC has been found to differentiate between people with BN or AN, and a psychiatric control group (Mizes, 1992), and between people with BN and non-eating disordered controls (Mizes, 1988).

1.4.2.3 Core beliefs

Research into the content of core beliefs in people with eating disorders only began relatively recently, despite their theoretical importance. A recently developed measure of core beliefs and underlying assumptions in eating disorders will now be described.

1.4.2.4 The Eating Disorder Belief Questionnaire (EDBQ; M. Cooper, Cohen-Tovee, Todd, Wells & Tovee, 1997)

The EDBQ was developed to assess both beliefs and assumptions relevant to eating disorders. The beliefs and assumptions measured by the EDBQ are negative self-beliefs, weight and shape as a means to acceptance by others, weight and shape as a means to self-acceptance, and control over eating. The four sub-scales were correlated with specific eating disorder psychopathology measures. The negative self-beliefs sub-scale seemed to measure generic beliefs associated with depression, while the others measured the more specific beliefs characteristic of eating disorders. One advantage of the EDBQ is that it provides separate sub-scales for the different areas of concern (i.e. weight, shape and eating) whereas previous measures such as the MAC have tended to combine them. It also measures beliefs specifically reflecting the hypothesised core psychopathology of eating disorders i.e. the personal meaning attached to weight and shape (Vitousek & Hollon, 1990).

In a study by M.Cooper & Hunt (1998) scores on the three weight, shape and eating related sub-scales differentiated between women with BN and depressed and female control groups, with the BN group scoring significantly higher. Women with AN have also been found to score significantly higher than dieting and non-dieting women on the EDBQ sub-scales, while dieters scored higher than non-dieters on the sub-scales measuring assumptions related to weight and shape (M.Cooper & Turner, 2000). These preliminary studies suggest that the beliefs and assumptions measured by the EDBQ are important in the conceptualisation of eating disorders.

1.4.2.5 Generic core beliefs

In addition to weight/shape specific core beliefs, the role of more general beliefs in eating disorders has been investigated. A preliminary study by Leung, Waller & Thomas (1999) assessed beliefs in women with eating disorders using the Schema Questionnaire (Young, 1994). This assesses pathological core beliefs that are not directly related to food, shape and weight, such as Defectiveness/Shame and Failure to Achieve. They found that women with both AN and BN showed similarly higher levels than control women of such core beliefs. However, Leung et al found group differences in the relationship between core beliefs and unhealthy eating attitudes. In women with BN unhealthy eating attitudes were associated with half of the core beliefs measured (e.g. Failure to Achieve). In women with AN however, unhealthy eating attitudes were not significantly associated with any of the core beliefs measured. It seems that these more general core beliefs are important in eating disorders, although the distinguishing feature between AN and BN may not be the strength of core beliefs, but how they relate to maladaptive eating attitudes.

In a further study Waller, Ohanian, Meyer, & Osman (2000) found that women with bulimic disorders could be differentiated by the content of their core beliefs (measured by the Schema Questionnaire). The core beliefs that discriminated between the groups (women with BN, bulimic anorexia or binge-eating disorder) were Defectiveness/Shame, Failure to Achieve and Insufficient Self-Control. For example, women with BN had high Defectiveness/Shame and Insufficient Self-Control scores, and low Failure to Achieve scores.

Women with bulimic anorexia however had very high Defectiveness/Shame and Insufficient Self-Control scores, and high Failure to Achieve scores. In terms of predicting symptoms, Emotional Inhibition predicted the frequency of binge eating, while Defectiveness/Shame predicted the frequency of vomiting. These findings suggest that more general core beliefs are also important in the conceptualisation of eating disorders, and that specific links may exist between beliefs and symptoms.

To summarise, cognitive theories have been influential in the conceptualisation of eating disorders, and in guiding successful treatments. There is some evidence for the implications of the models, however research remains at an early stage. Most research to date has been conducted in adult women. The EDBQ appears to be a useful measure in women for measuring beliefs and assumptions related to weight, shape and eating. No studies have investigated its use in adolescents.

As discussed previously, eating disorders are regarded as multidimensional, with cognitive theories unable to fully account for their development and maintenance. Sociocultural factors in particular have received increasing attention recently, and will now be discussed.

1.5 Sociocultural perspectives on eating disorders

1.5.1 Overview

Sociocultural factors have been cited as having a causal role in eating disorders (e.g. Garfinkel & Garner, 1982). A central premise of sociocultural theories is that the extent to which Western society values thinness in women is directly related to the prevalence of eating disorders, as women feel under pressure to achieve the socially approved thin ideal body shape. There are four basic strands to the sociocultural argument (Levine, Smolak & Hayden, 1994). Firstly, over the last fifty years, the ideal woman (e.g. as portrayed in the media) has become thinner, despite women in the general population becoming heavier. Secondly, the thin ideal has become associated with professional success. Thirdly, women/girls receive the message (from

e.g. magazines) that the thin ideal is achievable through dieting and exercise. Finally, direct exposure to sub-cultures emphasising the importance of slenderness greatly increases the risk of unhealthy weight-management behaviours and eating disorders (Levine et al, 1994).

Individuals exist within a sociocultural network, which includes e.g. families and peers (Levine & Smolak, 1996). Stice (1998) suggests two processes by which socialisation agents (such as parents, peers, the media) may promote behaviour. *Social reinforcement* occurs when people internalise definitions and display behaviours and values which are approved of by significant others. For example, social reinforcement may occur through parents encouraging a child to lose weight. It is hypothesised that the thin ideal is then internalised, and body dissatisfaction and subsequent dietary restraint can arise where the ideal differs from the individual's perceived actual size. *Modelling* is the direct imitation of other people's behaviour (Bandura, 1969), e.g. an adolescent girl copying her mother's dietary restriction.

While models of sociocultural influence have been proposed, they have not been extensively researched. Instead, research has tended to focus on investigating the influence of various sociocultural factors on women's/girls' eating disorder related behaviours and concerns. Consequently, these models will not be discussed in great detail. Two of the models will now be discussed briefly.

1.5.2 Models of sociocultural influence

Stice (1994) outlined a dual-pathway model of BN, combining sociocultural factors and individual differences. The model proposed that self-esteem and identity confusion influence the extent to which sociocultural pressures to be thin are internalised. These pressures can come from different sources e.g. parents, peers, the media. Body weight is hypothesised to moderate the relationship between these internalised pressures and body dissatisfaction, with discrepancies between perceived and ideal weight producing body dissatisfaction. This promotes dieting and negative affect, which may ultimately lead to bulimic symptomatology.

Smolak & Levine (1996) outlined their developmental transitions model, in which disordered eating in adolescence is hypothesised to result from a transaction between predispositions (e.g. beliefs about the importance of thinness) and simultaneous adolescent transitions. Adaptations to the transitions are made and reinforced within a context of powerful culturally accepted messages about the importance of thinness from family, peers and the media. In the model, eating problems are regarded as one adaptation to the demands of these adolescent transitions.

There is increasing research into the impact of sociocultural influences on the eating attitudes and weight and shape concerns of women and girls. Most research has focused on the influence of the family (particularly parents), peers and the media. This is discussed below.

1.5.3 Familial influences

There is some evidence that parental social reinforcement of the thin ideal is related to eating pathology (Stice, 1998). Women have reported receiving more parental feedback regarding their appearance during adolescence than men, and this was associated in the women with poorer body image (Schwartz, Phares, Tantleff-Dunn, & Thompson, 1999). Women with a lifetime history of BN reported that their parents were more likely to have shown excessive concern with their eating, weight and shape during adolescence compared to comparison women (Rorty, Yager, Rossotto, & Buckwalter, 2000). In children aged 9-11, direct parental commenting (particularly by mothers) on the child's weight was correlated with child shape and weight concerns and behaviours (Smolak, Levine & Schermer, 1999). Parental encouragement to lose weight was found to predict adolescent girls' dieting status by Huon, Lim & Gunewardene (2000). Teasing by family members was a significant predictor of eating attitudes and behaviours in 10- to 14-year old girls (Levine et al, 1994). When questioned about the origins of their beliefs about weight, shape and eating, women with eating disorders cited teasing or criticism from family members or peers, or an excessive emphasis at home or school on food and eating (M.Cooper et al 1998; Moreno & Thelen, 1993).

Studies have examined the influence of parental (particularly maternal) modelling of eating behaviours. Pike & Rodin (1991) found that mothers of adolescent daughters with disordered eating had a longer dieting history and were more eating disordered themselves relative to comparison mothers. A direct relationship between mothers' and daughters' dietary restraint has been reported in 9- and 10-year old girls (Ruther & Richman, 1993; Hill, Weaver & Blundell, 1990), and maternal modelling of dieting was found to be a significant predictor of adolescent girls' dieting status by Huon et al (2000). However, findings from other studies have been contradictory. Byely, Archibald, Graber, & Brooks-Gunn (2000) found that mothers' dieting behaviours and body image failed to predict pre-adolescent girls' dieting and body satisfaction. Thelen & Cormier (1995) found no significant correlations between parents' concerns about their own weight or attempts to lose weight and those of their pre-pubertal children. Similarly Ogden & Steward (2000) found no correlation between mothers' and their adolescent daughters' restraint or body dissatisfaction levels. They suggested that the nature of the mother-daughter relationship (e.g. the presence/absence of clear boundaries between them) may either facilitate or protect against the transmission of weight concerns between generations.

1.5.4 Peer influence

Peers can be influential in attitude and behaviour development, particularly in adolescence (Shisslak et al, 1998). Peer conformity and modelling were found to be strong predictors of dieting status in adolescent girls (Huon et al, 2000). Members of adolescent female friendship groups have been found to display similar levels of body image concern, dietary restraint, and extreme weight-loss behaviours (Paxton, Schutz, Wertheim, & Muir, 1999). Groups displaying higher levels of body image concern and weight-loss behaviours also talked more about weight loss and dieting with friends and compared their bodies more. In addition they reported their friends as being more influential in their decisions to diet, and more preoccupied with dieting and weight loss.

The Inventory of Peer Influence on Eating Concerns (IPIEC; Oliver & Thelen, 1996) was developed to examine how three peer related factors (Likability, Messages and Interactions) influenced children's eating and body concerns. In 9- to 11-year olds, peer likability (i.e. the belief that being thin would make peers like them) was the strongest predictor of eating and body concerns, particularly in the girls (Oliver & Thelen, 1996). The frequency of receiving negative messages about their bodies was also significantly related to children's eating and body concerns, but the interactions with peers concerning eating and body issues were not. This is contrary to findings by e.g. Gibbs (1986) in adolescent girls, where the frequency with which girls talked with friends about dieting and weight loss predicted eating disordered behaviours and attitudes. As girls go through adolescence, interactions with peers may exert greater influence on their attitudes and behaviours around eating, weight and shape.

1.5.5 Media influence

An influential messenger of the sociocultural pressures for women/girls to be thin is the mass media (Stice, Schupak-Neuberg, Shaw & Stein, 1994), including television and magazines. Individuals today receive more information from the various media than ever, and this information contains images of the 'ideal' body shape for women (Balaam & Haslam, 1998). Levine & Smolak (1996) outline reasons to suggest that the mass media have a role in the development and maintenance of attitudes and behaviours on the continuum of disordered eating. For example, they describe how television viewing can influence nutrition choices by children. In the UK recently there has been considerable debate concerning the contribution of the media to the increasing incidence of eating disorders (British Medical Association, 2000).

Content analysis studies of the media portrayal of women provide evidence that fashion models have become thinner, and that the majority of female television celebrities are thinner than the average woman in the population (e.g. Silverstein, Peterson & Perdue, 1986). The number of articles and advertisements concerned with body shape, dieting and food has also been found to be significantly higher in women's than men's magazines (e.g. Silverstein et al, 1986).

A few experimental studies have investigated the impact of media content on body dissatisfaction by exposing women to thin media images and assessing changes in their self- and body-perceptions. Such studies have found that college women exposed to slides of thin fashion models as opposed to average weight models or neutral pictures report greater depression and lower self-esteem and weight satisfaction (Irving, 1990; Stice & Shaw, 1994). A review by Levine & Smolak (1998) however, concluded that exposure to these images only had an immediate effect on girls/women who were already anxious or sensitive about their body shape.

Studies have examined the relationship between the frequency of exposure to the media portrayed thin ideal, and body dissatisfaction and disordered eating. Harrison & Cantor (1997) found that magazine reading (particularly of those deemed as promoting thinness) significantly predicted drive for thinness scores and disordered eating in college women. Using structural equation modelling, Stice, Schupak-Neuberg et al (1994) found a direct relationship between media exposure and eating disorder symptoms in women, suggesting that social learning variables were operating (e.g. modelling of dieting behaviour). The media portrayal of the thin ideal has been reported by adolescent girls to be a major pressure to be thin (Wertheim, Paxton, Schutz, & Muir, 1997; Tiggeman, Gardiner & Slater, 2000). Women with eating disorders are significantly more likely to report that magazines influenced their weight and body-shape related attitudes and behaviour (Murray, Touyz & Beumont, 1996).

1.5.6 Awareness and Internalisation of societal ideals

The importance of individual differences in factors such as the awareness and internalisation of societal pressures regarding appearance have been examined by Heinberg, Thompson & Stormer (1995). They developed the Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ) as a measure of awareness (or acknowledgement) and internalisation (or acceptance) of the societal emphasis on appearance. This emphasis may be communicated via e.g. the media, parents and peers. The

internalisation scale accounted for six times more variance associated with body image and eating dysfunction measures than the awareness scale. Cusumano & Thompson (1997) replicated this finding. Media exposure was not a significant predictor. It may be that the observed relationship of exposure to the thin ideal found in the studies described above resulted from the raising awareness of and subsequent internalisation of societal ideals. Related to this, in a prospective study, girls who reported trying to look like television celebrities (possibly indicating internalisation of the thin ideal) were significantly more likely to begin purging (Field, Camargo, Barr Taylor, Berkey, & Colditz, 1999). Studies using the SATAQ have to date only been conducted with women, and Cusumano & Thompson (1997) suggest that exposure to e.g. media may be a risk at an earlier point, e.g. adolescence, and that it may precede and bring about awareness and internalisation of societal pressures.

However, rather than girls/women being passive responders to socialisation agents e.g. the media, the relationship may be reciprocal, whereby individuals actively choose and respond to messages. Internalisation of the thin ideal and subsequent body dissatisfaction may therefore not be inevitable (Berel & Irving, 1998). The extent to which adolescent girls see fashion/beauty magazines as an important source of information and ideals about an attractive body shape and how to obtain it has been found to significantly predict investment in thinness, weight management behaviour and disturbed eating (Levine et al, 1994). In Tiggeman et al's (2000) study, while adolescent girls described how the media portrayal of thin, attractive women leads to the belief that thinness is the cultural norm, they also understood that the images were unrealistic and manipulated.

To summarise, sociocultural factors and their influence on (particularly) girls' and women's eating and shape and weight concerns have been increasingly researched. Some evidence suggests that parents may socially reinforce the thin ideal, and that concerns may be modelled to their children. Peer interactions and the belief that being thin will make peers like them may also influence children's eating, shape and weight concerns. The media portrayal of the thin ideal e.g. in fashion magazines may also contribute to eating

disorder related attitudes and behaviours. Socialisation agents may have their influence through an active process of girls/women choosing particular messages, and internalising them. If ideals are internalised and there is a discrepancy with the perceived actual size/shape, this may lead to body dissatisfaction in individuals with additional vulnerabilities e.g. low self-esteem.

1.6 Methodological limitations

The cross-sectional nature of most of the above studies investigating sociocultural influences on body dissatisfaction/eating disturbance mean that causal relationships cannot be inferred. Longitudinal studies are required to provide such information. A large-scale longitudinal study aimed at identifying protective and risk factors (including sociocultural influences) for unhealthy eating/weight regulation practices and eating disorders in pre-adolescent and adolescent girls is currently underway in the US (Shisslak et al 1998).

1.7 Summary of Literature Review

High prevalence rates of dieting and shape and weight concerns have been consistently found in adolescent girls. This is concerning as dieting is considered a risk factor for eating disorders and weight restriction can have harmful physical consequences. The most influential cognitive models of AN and BN emphasise the importance of underlying assumptions and automatic thoughts regarding weight and shape. Core beliefs are also important. Some evidence supports the implications arising from cognitive theories. A promising new measure of core beliefs and underlying assumptions (EDBQ) in women has not yet been tested in adolescents.

Sociocultural factors are also important. These models emphasise the role of societal pressures on (particularly) women to conform to the thin ideal as a risk factor for the development and maintenance of eating disorders. Parents may socially reinforce the thin ideal by commenting on their daughter's weight or shape. Findings on maternal modelling weight and shape concerns have been contradictory.

During adolescence, peers are important in influencing attitudes and behaviours. The frequency of interactions with peers concerning dieting predicts eating disordered attitudes and behaviours in adolescent girls, but not in younger children. The frequency of receiving negative body-related messages from peers has also been related to eating and body concerns.

There has been debate regarding the media's role in fostering eating and shape and weight concerns in (particularly) girls and women, through its portrayal of the increasingly thin ideal body. Exposure to magazines/television portraying the thin ideal has been related to eating disordered attitudes and behaviours. In addition to being directly linked, exposure to the media and messages from other socialisation agents (e.g. family, peers) may indirectly influence attitudes and behaviours, when the ideals are internalised and acted upon. In women, internalisation of cultural pressures to be thin has been found to be a significant predictor of disordered eating attitudes and behaviour.

1.8 Aims of Current Study

The current study aimed to examine the validity of the EDBQ in adolescent girls, and explore some of the hypotheses derived from the cognitive and sociocultural models of eating disorders in this group. The study aimed to answer the following research questions and hypotheses.

1.8.1 Research Questions

- Q1.** Are the psychometric properties (i.e. factor structure, construct validity) of the EDBQ found previously in women (M. Cooper et al, 1997) replicable in a sample of adolescent girls?
- Q2–Q6.** Are the following sociocultural factors significantly positively correlated with and predictive of girls' eating behaviour and weight and shape concerns:
- Q2.** Maternal eating, weight and shape concerns
- Q3.** Parental concern with daughters' weight and shape
- Q4.** Peer factors e.g. the interactions girls have with their friends, the messages they receive about their bodies and eating, and the belief that being thin will make them more likeable
- Q5.** Media factors e.g. exposure to fashion magazines and the extent to which magazines are an important source of information and ideals about an attractive body shape and how to achieve it
- Q6.** Awareness and internalisation of societal ideals

1.8.2 Hypotheses

Hypothesis 1: The psychometric properties (i.e. factor structure, construct validity) of the EDBQ found previously in women (M. Cooper et al, 1997) will be replicable in a sample of adolescent girls.

Hypotheses 2 – 6: The following sociocultural factors will be significantly positively correlated with, and will account for a significant proportion of variance in, the girls' eating behaviour and eating disorder related symptoms (measured by the Eating Attitudes Test; EAT, Garner & Garfinkel, 1979):

- 2(i)** Maternal eating, weight and shape concerns (measured by the EDBQ)
- 2(ii)** Maternal dietary restraint (measured by the EDE-Q)

- 2(iii)** Maternal investment in personal thinness (daughters' perception)
- (3i)** Maternal concern with daughters' weight (mothers' perception)
- (3ii)** Parental investment in daughters' shape (daughters' perception)
- (4i)** Peer interactions
- (4ii)** The messages girls receive from peers about their bodies and eating
- (4iii)** The extent they believe being thin will make them more likeable to peers
- (5i)** Exposure to fashion magazines
- (5ii)** The extent to which magazines are an important source of information and ideals about an attractive body shape and how to achieve it
- (5iii)** Level of interest in emulating fashion models
- (6)** Level of awareness and internalisation of societal ideals

2.0 METHOD

2.1 Design

A one-sample cross-sectional design was used.

2.2 Ethics Approval

This was obtained from the Local Research Ethics Committee for the area from which the participants were recruited (Appendix 1).

2.3 Participants

In stage 1 13- to 18-year old girls from mainstream schools participated. In stage 2 those girls from stage 1 who volunteered to participate with their mothers in a second study took part. For stage 2 only girls scoring below the cut-off point of 30 on the EAT (Garner & Garfinkel, 1979) were included.

2.4 Measures – Stage 1

❖ Demographic information

Girls stated their age, ethnic origin (categories from Office of Population Censuses and Statistics; Coleman & Salt, 1996), and both parents' occupations (for calculation of socio-economic status). Socio-economic status was classified according to the National Statistics Socio-economic Classification (NS-SEC; Rose & Pevalin, 2001). This classification has replaced the previously widely used system (Social Class based on Occupation; Office of Population Censuses and Surveys, 1991).

❖ Height and weight

Self-reports of height and weight were used to calculate body mass indices (BMI) for the girls. Age standardised weight-for-height ratio was calculated using a computer programme developed at Great Ormond Street Hospital. This takes into account the expected weight and height for the girl's age (Cole, 1979). A girl with exactly the mean BMI for her age would have an age standardised weight for height ratio

of 100. Scores over 100 indicate a BMI that is higher than the mean for that age group, while scores under 100 indicate a BMI that is lower than the age-group mean.

❖ The Eating Disorder Belief Questionnaire (EDBQ; M.Cooper et al, 1997)

This 32-item self-report measure (Appendix 2) assesses assumptions and beliefs relevant to eating disorders. Each item is rated on a 0-100 scale (0='I do not usually believe this at all' and 100='I am usually completely convinced that this is true'). The EDBQ has four sub-scales: *Negative Self Beliefs (NSB)*, *Weight and Shape as a means to Acceptance by Others (AO)*, *Weight and Shape as a means to Self Acceptance (SA)*, and *Control over Eating (CE)*. Preliminary data suggest that the measure has good reliability (Cronbach alpha coefficient values for the four factors ranged from 0.86 – 0.94) and construct validity (correlations between the four factors and other measures of eating disorder were all significant at $p < 0.01$) in women (M.Cooper et al, 1997). Its psychometric properties have not yet been assessed in adolescent girls.

❖ Eating Attitudes Test – 40 item version (EAT; Garner & Garfinkel, 1979)

This is a well-established self-report questionnaire (Appendix 3) with good psychometric properties. The EAT has good reliability (alpha coefficient value = 0.94 for combined anorexia nervosa and control samples; Williamson, Anderson, Jackman & Jackson, 1995) and construct validity (correlations with other eating disorder measures range from 0.42 - 0.81; Williamson et al, 1995). The EAT provides a global score of eating disturbance. Items are answered on a 6-point Likert scale (1=never, 6=always). Scores ≥ 30 are recommended as likely to indicate a clinical eating disorder (Garner & Garfinkel, 1979).

❖ Body Shape Questionnaire (BSQ; P.Cooper, Taylor, Cooper & Fairburn, 1987)

The BSQ is a 34-item self-report measure of concerns about body shape over the past four weeks, particularly the experience of "feeling fat" (Appendix 4). It has good concurrent validity (correlations with EAT ranged from 0.35 – 0.61), satisfactory discriminatory validity (P.Cooper et al, 1987) and excellent

internal consistency (alpha coefficient = 0.97; Evans & Dolan, 1993). Items are answered on a 6-point Likert scale (1=never, 6=always).

❖ Dutch Eating Behaviour Questionnaire-Restraint Sub-scale (DEBQ-R; van Strien, Fritjers, Bergers & Defares, 1986)

This 10-item self-report measure (Appendix 5) has good internal consistency (alpha coefficient >0.90), construct validity, and high test-retest reliability ($r = 0.92$) reported by Allison (1995). The DEBQ-R has good internal consistency (alpha coefficient = 0.94) and test-retest reliability ($r = 0.85$) in adolescents (Banasiak, Wertheim, Koerner, & Voudouris, 2001). Items are answered on a 5-point Likert scale (1=never, 6=very often) and the mean score is calculated.

❖ Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1965)

The RSE is a widely used 10-item self-report measure (Appendix 6) for the assessment of global self-esteem. Items are answered on a 4-point Likert scale (strongly agree – strongly disagree). High scores (maximum = 40) indicate good self-esteem.

❖ Children's Depression Inventory (CDI; Kovacs, 1981)

This 27-item self-report measure (Appendix 7) is the most commonly used inventory for assessing childhood depression (for 7- to 17-year olds). It has good internal reliability (alpha coefficient = 0.94 for control sample and 0.80 for emotionally disturbed sample: Saylor, Spirito, Finch, & Bennett 1984). The CDI has been found to discriminate between depressed children and children who present with sad affect alone (Knight, Hensley & Waters, 1988).

2.5 Measures - Stage 2:

2.5.1 Distributed to mothers

❖ Demographic information

Mothers stated their age, ethnic origin (categories as before), and their own and partner's occupations (for calculation of socio-economic status).

❖ EDBQ (M.Cooper et al, 1997)

See above.

❖ Eating Disorders Examination Questionnaire (EDE-Q; Fairburn & Beglin, 1994)

This is a self-report questionnaire version (Appendix 8) of an interview schedule (EDE; Z. Cooper, Cooper & Fairburn, 1989). In this study, the restraint sub-scale was used. Scores on the EDE-Q are highly correlated with those on the EDE interview (Pearson's r-values varied from 0.78 – 0.85; Fairburn & Beglin, 1994). The EDE has satisfactory internal consistency (alpha coefficient values for the five sub-scales range from 0.67 – 0.90; Z. Cooper et al, 1989).

❖ Concern with daughter's weight

A four-item self-report measure assessed (on a 5-point Likert scale, 1 = never, 5 = 11+ times) how often mothers had encouraged their daughter to control/lose weight (Appendix 9). This measure was used by Thelen & Cormier (1995) and is a modified version of their Family History of Eating Survey (FHES; Moreno & Thelen, 1993). Moreno & Thelen (1993) found the items used here to be highly internally consistent (alpha coefficient = 0.84 – 0.95, cited in Thelen & Cormier, 1995).

❖ Height and weight

Self-reported height and weight were used to calculate BMI.

2.5.2 Distributed to girls

❖ Demographic information

Girls stated their age, ethnic origin (categories as above), and their father's and mother's occupations (for calculation of socio-economic status).

❖ EAT (Garner & Garfinkel, 1979)

See above.

❖ Perception of maternal concern

A four-item self-report measure asked daughters (on a 5-point Likert scale, 1 = never, 5 = 11+ times) how often their mothers had encouraged them to control/lose weight (Appendix 10). This measure was also used by Thelen & Cormier (1995). The items used here were internally consistent (alpha coefficient = 0.83) in their original study (Moreno & Thelen, 1993, cited in Thelen & Cormier, 1995).

❖ Parental influences scale; Levine et al (1994)

Two scales assessed daughters' perceptions of parents' attitudes and behaviours in regard to weight/shape (Appendix 11). *Parental investment in daughters' shape* has four items assessing girls' perception of how important her thinness is to each parent. Items are rated on a 5-point Likert scale (1 = not at all concerned, 5 = very concerned). The second scale assesses daughters' perceptions of *mothers' investment in her personal thinness*, and contained three items. These are rated on a 6-point Likert scale (1 = never, 6 = all the time). Higher scores indicate perceptions of mothers having greater investment in their own thinness. Levine et al (1994) reported good internal consistency (alpha coefficient values = 0.80 for Parental investment in daughters' shape and 0.73 for Mothers' investment in own thinness).

❖ Inventory of Peer Influence on Eating Concerns (IPIEC; Oliver & Thelen, 1996)

This 30-item self-report measure has five factors (Appendix 12). *Messages* measures how frequently children receive negative messages from peers about their bodies or eating habits. *Interactions/Boys* and *Interactions/Girls* assess the frequency with which children interact with boys/girls about eating or body matters. *Likability/Boys* and *Likability/Girls* assess beliefs that being thin will make boys/girls like them more. The scales are internally consistent (alpha coefficient values ranged from 0.76 – 0.92), and data from the preliminary study (Oliver & Thelen, 1996) suggests it is a valid measure (significant correlations with other eating disorder measures ranged from 0.30 – 0.60). Questions are rated on a 5-point Likert scale (1=never, 5=a lot).

❖ Media Influence Measures

❖ (a) Exposure

As in Levine et al (1994) girls were asked how often they *read regularly*, *glanced through sometimes* or *never read* magazines aimed specifically at the adolescent girl and young female population (e.g. Sugar, Elle, see Appendix 13 for full list). The magazines chosen were among those listed as having the highest average net circulation between January and June 2000 in the UK and Republic of Ireland (Audit Bureau of Circulations, 2001).

❖ (b) Magazine Information; Levine et al (1994)

Six questions assessed, on a 5-point Likert scale, how important (1=not at all; 5=very) magazine advertisements and articles were in influencing girls' idea of the perfect body and how to achieve it (Appendix 13). Levine et al (1994) found the scale to be internally consistent (alpha coefficient = 0.88).

❖ (c) Model; Levine et al (1994)

Eight questions assessed, on a 5-point Likert scale (1=strongly disagree; 5=strongly agree), girls' interest in emulating the models appearing in magazines and on television (Appendix 13). Levine et al (1994) found this scale to be internally consistent (alpha coefficient = 0.76).

❖ Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ; Heinberg et al, 1995)

This 14-item self-report measure contains two factors (Appendix 14). The *Awareness* sub-scale measures awareness/acknowledgement of a societal emphasis on appearance, while the *Internalisation* sub-scale measures the extent to which this has been internalised/accepted. In women, Heinberg et al (1995) reported good internal reliability (alpha values = 0.71 for awareness and 0.88 for internalisation) and concurrent validity (correlations with other eating disorder measures ranged from 0.28 – 0.44 for awareness and 0.36 – 0.55 for internalisation). Questions are rated on a 5-point Likert scale (1 = completely disagree, 5 = completely agree).

❖ Height and weight

Girls' height and weight were measured by the researcher at their home and used to calculate BMI. Age standardised weight-for-height ratio was calculated as before.

❖ Time to complete questionnaires

It was estimated that it would take the girls 50 minutes to complete the questionnaires in stage 1, and the same length of time to complete the stage 2 measures. It was estimated that the mothers could complete their measures in around 30 minutes.

2.6 Procedure

2.6.1 Stage 1

Thirteen state secondary schools were invited to participate, of which two (one all-girls, one mixed) accepted. A brief talk was given at year group assemblies to introduce the study to the pupils. Initial information letters were then distributed to the girls to give to their parents, outlining the aims of the study and asking them to return a reply slip if they did not want their daughter to be invited to participate. Two parents requested that their daughters not be invited to participate. Following this, the stage 1 questionnaire packs (including an information letter for the girls; Appendix 15) were distributed to the girls by their tutors. A total of 570 initial questionnaire packs were distributed, to girls between year 9 and the 6th form. Also included in the questionnaire pack was a letter/reply slip for mothers, inviting them to participate with their daughter in stage 2. Girls returned the questionnaires and reply slips to school, posting them in a box provided.

2.6.2 Stage 2

Mothers who volunteered to participate in stage 2 were telephoned to ensure that they wanted to participate. Those who did were sent questionnaire packs for completion by themselves and their daughters. Arrangements were made for the questionnaires to be collected from their home a week later. At this time, signed consent forms were collected (Appendix 16), the girls had their height and weight checked, and any queries were answered. At each stage, participants were informed that participation was voluntary, and that they could withdraw at any time. An information sheet listing organisations that could be contacted if participants had concerns around eating, weight and shape (Appendix 17) was included with questionnaires. Participants were also informed that if completing the questionnaires raised any questions or caused distress they could contact the researcher to discuss these.

3.0 RESULTS

3.1 Data Analysis

Prior to analysis, the normality of the distributions were checked using the Kolmogorov-Smirnov test. Where the data was not normally distributed, non-parametric tests were used. The method of factor analysis chosen in stage 1 (principal components with oblimin rotation) was chosen in order to replicate that of M. Cooper et al (1997). This method allows for their finding that the four factors were inter-correlated (which varimax rotation precludes). In stage 2 a step-wise regression was preferable to hierarchical or block entry regressions as there was no theoretical model to guide order of entry of the factors into the model (Levine et al, 1994). Also, as the sample was small, a step-wise regression was more appropriate. There is debate regarding the ratio of participants to predictor variables required for step-wise regression, ranging from 10 to 40 participants per significant variable entered into the regression equation (Everitt, 1975). As only one variable emerged as a significant predictor in stage 2 of the current study, it was considered appropriate to quote the regression analysis results. However, it is acknowledged that a larger sample would have allowed conclusions to be drawn from the analysis with more confidence.

3.2 Response rate

Of the 570 stage 1 questionnaire packs distributed across the two schools, 83 completed sets were returned (14.56%). Thirty-nine contained reply slips for stage 2. Of these thirty-nine girls, one had scored above 30 on the EAT, therefore could not be included in stage 2. The remaining thirty-eight girls and their mothers participated.

3.3 Stage 1 Descriptive Data - Demographics

3.3.1 Age: The girls' mean age was 14.88 (Standard Deviation, SD=1.47). The numbers in each age group are outlined in Table 1.

Table 1: Age

Age	Frequency	% of sample
13	18	21.7
14	22	26.5
15	12	14.5
16	15	18.1
17	15	18.1
18	1	1.2
Total	83	

3.3.2 Ethnic origin: Seventy-nine (95.2%) of the girls were white, one (1.2%) was Bangladeshi, and two (2.4%) stated their ethnic origin as 'other'.

3.3.3 Socio-economic Status

Sixty-three girls provided sufficient data to be allocated an NS-SEC category. Of these, 62 could be allocated an approximate social class (one parent was in the long-term unemployed category therefore could not be allocated a social class). The numbers in each category are presented in Table 2.

Table 2: Socio-economic Status

NS-SEC Category	Frequency (%)	Social Class	Frequency (%)
L3.1, L3.3	14 (22.6)	I	14 (22.6)
L2, L3.2, L3.4, L4.1, L5, 7.3, L8.2	24 (38.7)	II	24 (38.7)
L4.2, L7.2, L6	5 (8.1)	III-Non manual	5 (8.1)
L7.4, L9.1, L11.1, L12.3, L13.3	12 (19.4)	III-Manual	12 (19.4)
L12.2, L12.4, L13.1, L13.2	6 (9.7)	IV	6 (9.7)
L13.4	1 (1.6)	V	1 (1.6)
L14.2	1 (1.6)	Not classifiable	
	Total: 63		Total: 62

Just over 60% of participants were from social classes I and II, with one (1.6%) from social class V.

3.3.4 BMI & Weight for Height (W4H): Sixty-eight girls reported their weight and height. The mean BMI was 20.46 (SD = 3.20), and ranged from 15.86 to 34.73. The mean W4H was 102.93 (SD = 15.50), and ranged from 77.27 to 166.33. Thus, on average, the girls were within a normal weight range (recommended as between 95-105% of expected W4H; Lask, personal communication). Four (5.88%) of the girls had W4H values below 85% (the cut-off point required for a diagnosis of AN) and 6 (8.82%) had values over 120% (corresponding to 97th centile or above and defined as obesity; Cole, Freeman & Preece, 1995).

3.4 Stage 1 Descriptive Data - Disordered eating and other pathology

3.4.1 EAT: The mean score was 14.45 (SD = 13.29), and ranged from 0 to 84. This is slightly lower than the mean of 15.6 found by Garner and Garfinkel (1979) in an adult female control group. Eight (9.64%) of the girls in this sample scored above 30. This is slightly higher than the 8.7% of 14 to 16-year old Caucasian girls who scored above the cut-off point on the 26-item version of the EAT (Mumford, Whitehouse & Platts, 1991).

3.4.2 BSQ: The mean score was 93.45 (SD = 46.22), and ranged from 35 – 198. In a control sample of women, P. Cooper et al (1987) reported a mean of 81.5. Mumford et al (1991) reported a mean of 70.3 in their sample of 14 to 16-year old girls.

3.4.3 DEBQ-R: The mean score was 2.36 (SD = 1.07), and ranged from 1 – 5. This is similar to a mean of 2.52 reported in 14 to 15-year old girls (Hill et al, 1992).

3.4.4 RSE: The mean score was 27.23 (SD = 6.12), and ranged from 10 – 40. In a small study, M. Cooper & Turner (2000) reported a mean of 33.0 in an adult female control group.

3.4.5 CDI: The mean score was 10.69 (SD = 10.32), and ranged from 0 – 35. This is slightly higher than the mean of 9.27 in 10 to 17-year old children found by Kovacs (1981).

3.5 Stage 1 Hypothesis Testing

Hypothesis 1: The psychometric properties of the EDBQ will be similar when administered to adolescent girls as to that found with a sample of women.

3.5.1 Factor Analysis

To test for the hypothesised factor structure, a principal components factor analysis with oblimin rotation was conducted, with four factors extracted initially.

The four factors extracted had eigenvalues > 1 , and together they accounted for 67.12% of the total variance. However these factors were not discrete. Only three items did not load onto more than one factor at >0.40 . The first factor appeared to be a general factor, comprised of 25 items from all four sub-scales loading onto it at >0.40 . Twelve of these items (from all sub-scales except NSB) loaded onto this factor higher than any other. This first factor accounted for almost half (48.37%) of the variance. Ten items (all NSB) had their highest loading onto the second factor (although 19 other items loaded onto factor 2 at >0.40). This factor accounted for 8.61% of the variance. The third factor (accounting for 5.51% of the variance) contained only one item with its highest factor loading (CE). However 16 other items loaded onto factor 3 at >0.40 . Eight items from the AO and SA sub-scales had their highest loadings onto factor four (with 16 other items loading onto factor 4 at >0.40). This factor accounted for 4.62% of the variance, and appeared to be a general "acceptance" factor (although not discrete).

Given the lack of discrete factors, a second factor analysis was conducted, extracting only one factor. All 32 items loaded highly onto it (loadings varied from 0.54 to 0.84). This factor accounted for 48.83% of the variance. The alpha coefficient of internal consistency for the whole scale was 0.89. All item-total correlations were significant at $p < 0.01$ (r-values ranged from 0.44 to 0.81). Given that the hypothesised factor structure had not emerged, the construct validity of the EDBQ sub-scales could not be tested. The construct validity of the general factor (comprising the entire scale) was instead tested.

3.5.2 Construct Validity

3.5.2.1 Convergent validity

To assess convergent validity, each girl's total mean EDBQ score was calculated and correlated with their scores on the other measures of eating disorder psychopathology (EAT, BSQ, DEBQ-R), the general measures (CDI and RSE), and BMI as in M. Cooper et al (1997). Spearman correlations were calculated. Significant correlations were obtained between the EDBQ score and other measures, but not BMI (see Table 3).

Table 3: Correlations between EDBQ sub-scales and other measures

	BMI	EAT	BSQ	DEBQ-R	CDI	RSE
EDBQ mean score	0.07	0.61**	0.73**	0.60**	0.75**	-0.75**

** = $p < 0.01$

As the EAT and CDI scores were significantly correlated ($r = 0.45$, $p < 0.01$), partial correlations were performed to determine whether EDBQ score remained related to the EAT and CDI when the effect of the other was partialled out. EDBQ score remained significantly correlated with EAT ($r = 0.56$, $p < 0.01$, two tailed test) when CDI was controlled for. Thus, the relationship between EDBQ score and eating disorder symptoms was not simply due to the effect of depression level. EDBQ score also remained significantly correlated to CDI when EAT score was controlled for ($r = 0.62$, $p < 0.001$), indicating that its relationship with depression was not simply due to the effect of eating disorder symptom severity.

3.5.2.2 Criterion-related validity

Regression analysis investigating the EDBQ's power to predict variance in EAT and CDI when depression and eating disorder symptoms respectively were controlled for could not be conducted, as the assumptions underlying its use were not met (i.e. the residuals were not normally distributed). The criterion-related validity of the EDBQ could not therefore be tested.

3.6 Stage 2 Descriptive Data – Mothers - demographics

3.6.1 Ethnic origin: all girls and mothers in stage 2 were white.

3.6.2 Age: the mothers' mean age was 42.75 (SD = 4.72), and ranged from 34 – 52.

3.6.3 BMI: 36 mothers reported their weight and height. The mean BMI was 25.58 (SD = 4.08), and ranged from 20.14 to 36.34.

3.7 Predictor variable measures - mothers

3.7.1 EDBQ: The mean, SD and range of scores on the EDBQ sub-scales are given below. The figures in parentheses are the mean and SD values for the group of control women (n=254) obtained by M. Cooper et al (1997) in their original study.

- ❖ *Negative Self-Beliefs*: 9.97, SD = 12.12, range = 0 – 46, (16.4, SD = 15.8)
- ❖ *Weight & Shape as a means to Acceptance by Others*: 6.55, SD= 9.82, range= 0 – 43, (11.7, SD= 16.8)
- ❖ *Weight & Shape as a means to Self-Acceptance*: 34.75, SD = 24.18, range = 0 – 100, (26.6, SD= 16.0)
- ❖ *Control over Eating*: 5.65, SD = 7.70, range = 0 – 31.67, (8.6, SD= 11.3)

Independent samples t-tests revealed no significant differences [t-values all <1, p>0.05] between the scores of mothers in the current sample and those of the control sample of M. Cooper et al (1997).

3.7.2 EDE-Q (Restraint sub-scale): The mean score was 0.95 (SD = 1.05) and ranged from 0 to 4. Normative data is only available on the interview version of the EDE, however scores on the two versions have been found to be highly correlated (Williamson et al, 1995). The current sample's mean score is similar to that obtained by Z. Cooper et al (1989) in their control women (mean = 0.91).

3.7.3 Concern with daughter's weight: The mean score was 6.26 (SD = 3.61), and ranged from 4 – 18. This is similar to the mean (6.83) obtained by Thelen & Cormier (1995).

3.8 Stage 2 Descriptive Data – Girls

3.8.1 Age: The girls' mean age was 14.92 (SD = 1.36) and ranged from 13 – 17.

3.8.2 Socio-economic status

Thirty-one girls/mothers provided sufficient data to be allocated to an NS-SEC category and approximate social class (see Table 4).

Table 4: Socio-economic status

NS-SEC Category	Frequency (%)	Social Class
L3.1, L3.3	9 (24.3)	I
L2, L3.2, L3.4, L5, 7.3	12 (32.4)	II
L7.2	2 (5.4)	III-Non manual
L7.4, L9.1, L11.1, L12.3	5 (13.5)	III-Manual
L12.2, L13.1	3 (8.1)	IV
	0	V
	Total: 31	

Approximately two-thirds of the participants were from social class I or II, and the other third from social class III or IV. This is similar to the distribution in stage 1.

3.8.3 BMI & Weight for Height (W4H): The mean BMI was 21.68 (SD = 3.52) and ranged from 16.23 to 29.94. The mean W4H was 108.91 (SD = 17.42) and ranged from 81.34 to 153.97. Thus on average, the girls were slightly above the normal weight range as identified by Lask (personal communication).

3.8.4 EAT: The mean score was 9.05 (SD = 6.60), and ranged from 0 to 29. This is slightly lower than the mean in stage 1.

3.9 Predictor variable measures – Girls

3.9.1 Parental influence measures

❖ **Maternal investment in daughters' shape**: the mean value of the *perception of maternal concern* was 6.26 (SD = 3.86) and ranged from 4 to 18. This is similar to the mean (6.17) reported by Thelen & Cormier (1995).

- ❖ **Parental influences scale:** the mean values were as follows (figures in parentheses are the mean values obtained by Levine et al, 1994):

Parental Involvement in daughter's shape: 6.37 (7.48), SD = 3.50, range = 3 – 17

Maternal investment in her personal thinness: 6.76 (9.18), SD = 2.59, range = 3 - 13

3.9.2 Inventory of Peer Influence (IPIEC): The means (and in parentheses those obtained by Oliver & Thelen 1996) were as follows:

- ❖ *Interactions – girls* = 2.9 (1.97), SD = 1.23, range = 1 – 5
- ❖ *Interactions – boys* = 1.26 (1.39), SD = 0.46, range = 1 – 3
- ❖ *Messages* = 1.31 (1.68), SD = 0.42, range = 1 – 2.5
- ❖ *Likability – girls* = 1.55 (1.91), SD = 0.87, range = 1 – 4
- ❖ *Likability – boys* = 2.14 (2.17), SD = 1.19, range = 1 – 4.8

3.9.3 Media influence measures

- ❖ **Exposure:** The percentage of girls in each category were as follows (numbers in parentheses indicate the findings of Levine et al, 1994): *Hardly ever* = 18.4% (10.5%), *Irregular* = 28.9% (28.5%), *Regular* = 52.6% (61%).
- ❖ **MagInfo:** The mean score was 13.68 (SD = 6.02), and ranged from 6 to 28. This is lower than the mean (22.10) reported by Levine et al (1994) in 10 to 14-year old girls.
- ❖ **Model:** The mean value was 18.76 (SD = 5.07) and ranged from 8 to 27. This is lower than the mean (24.51) of Levine et al (1994).

3.9.4 Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ): The mean values were as follows: *Awareness* = 17.86 (SD = 3.71), range = 10 – 25, *Internalisation* = 21.36 (SD = 8.01), range = 8 – 40. Norms are not reported by Heinberg et al (1995).

Prior to testing the hypotheses, possible differences between girls who entered stage 2 and those who only participated in stage 1 in terms of eating pathology, self-esteem and so on were investigated. Independent samples t-tests were conducted for the DEBQ-R [$t(77) = 1.34, p > 0.1$] and RSE [$t(77) = 0.14, p > 0.1$] as these were normally distributed. Neither was significantly different between girls in stage 1 only and those also in stage 2. Mann-Whitney tests were conducted for BMI, EAT, BSQ, and CDI. There were no significant differences between the two groups (Mann-Whitney U values ranged from 503.0 to 722.0, all p values > 0.1).

3.10 Stage 2 Hypothesis Testing

Hypotheses 2 - 6: The following factors will be significantly positively correlated with, and account for a significant proportion of variance in the girls' EAT score:

Hypothesis 2

- ❖ Mothers' eating, weight and shape concerns (EDBQ sub-scales)
- ❖ Mothers' dietary restraint (EDE-Q)
- ❖ Maternal investment in her personal thinness

Hypothesis 3

- ❖ Maternal concern with daughters' weight (mothers' perception)
- ❖ Parental investment in daughters' shape (daughters' perception)

Hypothesis 4

- ❖ Peer interactions
- ❖ Messages girls receive about their bodies and eating
- ❖ The belief that being thin will make them more likeable

Hypothesis 5

- ❖ Exposure to fashion magazines
- ❖ Importance of magazines as a source of information/ideals about an attractive body shape and how to achieve it
- ❖ Interest in emulating fashion models

Hypothesis 6

- ❖ Awareness/internalisation of societal ideals

3.10.1 Correlation Analyses

The relationships between the predictor variables and EAT score were examined using Pearson/Spearman correlation analysis where appropriate. As the sample covered quite a wide age range, possible differences between younger and older girls were investigated. The sample was divided into 13- to 14-year olds (n=18) and 15- to 17-year olds (n=20). The significant correlations for the whole sample and the two age groups are presented in Table 5. Due to the large number of correlations being calculated, the stricter level of $p < 0.01$ was selected as indicating significance (for this reason, the two-tailed significance level is also quoted). However, those which approached significance ($p < 0.05$) are also highlighted.

Table 5: Correlations between predictor variables and EAT scores

Predictor Variable	Pearson's / Spearman	R : all girls n=38	R: 13-14 yrs n=18	R: 15-17 yrs n=20
Girls' BMI	S	0.35*	NS	NS
Concern with daughter's weight	S	0.33*	0.55**	NS
Perception of maternal concern	S	0.58**	0.55**	NS
Maternal investment in personal thinness	P	0.44**	0.51*	NS
Parental investment in daughter's shape	S	0.39**	0.65**	NS
Interactions – Girls (from IPIEC)	P	0.44**	NS	NS
Messages (from IPIEC)	S	0.52**	0.58**	NS
Likability – Girls (from IPIEC)	S	0.53**	NS	0.54*
Likability – Boys (from IPIEC)	S	0.59**	0.65**	0.47**
Magazine content	P	0.61**	0.65**	0.60**
Interest in emulating fashion models	P	0.48**	NS	0.57*
Awareness of societal ideals	P	0.33*	NS	NS
Internalisation of societal ideals	P	0.58**	0.57*	0.59**

NS = Not significant

* = $p < 0.05$ (2-tailed)

** = $p < 0.01$ (2-tailed)

IPIEC = Inventory of Peer Influence on Eating Concerns

The following were not significantly correlated with EAT score for the whole group or either age group: mothers' BMI, mothers' EDBQ sub-scales and EDE-Q (restraint) scores, girls' age, and Interactions – Boys. The following were not significantly correlated with EAT score in either age group: Interactions (Girls and Boys), and Awareness of societal ideals.

As the relationship between girls' BMI and EAT score approached significance, its relationship with the other predictor variables was explored, as it has been found to mediate relationships between predictor variables and measures of eating, weight and shape concerns (Oliver & Thelen, 1996). The significant correlations are presented in Table 6, for the whole sample and both age groups. Again, the stricter significance level of 0.01 was selected, however, the relationships approaching significance ($p < 0.05$) are also highlighted.

Table 6: Correlations between BMI and predictor variables

Predictor Variable	Pearson's / Spearman	R : all girls	R: 13-14 yrs	R: 15-17 yrs
(Mothers') Control over Eating	S	- 0.37*	NS	NS
Concern with daughters' weight	S	0.54**	0.67**	NS
Perception of maternal concern	S	0.65**	0.63**	0.54*
Parental investment in daughter's shape	S	NS	0.52*	NS
Messages	S	0.40*	NS	NS
Likability - Girls	S	0.35*	NS	0.53*
Likability - Boys	S	0.47**	NS	0.54*

NS = Not significant

* = $p < 0.05$ (2-tailed)

** = $p < 0.01$ (2-tailed)

BMI was not significantly related to the media influence variables.

3.10.2 Multiple Regression Analyses

The assumptions underlying the use of regression analysis were tested and found to be met e.g. the residual deviations were normally distributed. However, given the ratio of participants to potential predictor variables, caution is required in interpreting the results. To test hypotheses 2 - 6 a step-wise multiple regression was conducted. Girls' EAT score was the dependent variable, and the factors listed above were entered as predictor variables. To be entered into the regression analysis, the exposure variable had to be reduced to two categories. Girls previously classified as 'regular' (i.e. they read at least one magazine regularly) were classified as 1 and those previously classified as 'irregular' or 'hardly ever' were re-classified as 0.

For the whole sample, only one variable (Likability – boys) entered the equation [$F(1,36) = 47.96, p < 0.01$] with no others being significant predictors. With an adjusted R^2 value of 0.57 the belief that being thin would make boys like them accounted for 57% of the variance in girls' EAT scores.

To explore possible differences between girls of different ages, the step-wise regression was repeated for both age groups. Clearly, as the numbers in each group were small and there were several predictor variables, these results should be treated with caution. In the younger girls, Likability – Boys was again the only variable to enter the equation [$F(1,17) = 128.06, p < 0.01$]. With an adjusted R^2 value of 0.88, this variable accounted for 88% of the variance in EAT scores. For the older girls, Internalisation of societal ideals was the only variable to enter the equation [$F(1,18) = 9.75, p < 0.01$]. With an adjusted R^2 value of 0.33, this accounted for 33% of the variance in EAT scores.

4.0 DISCUSSION

4.1 Overview

This section begins with a summary of the findings, followed by a discussion of the limitations of the study. The findings are then interpreted in relation to theoretical perspectives, and the clinical implications discussed. Finally, recommendations for future research are made and overall conclusions highlighted.

4.2 Summary of results

4.2.1 Participant characteristics

Eighty-three girls aged 13 to 18 participated in stage 1. Their mean age was 14.88, and the majority (92.5%) were White. On average they were within a normal weight range, although approximately 15% were either <85% or >120% of expected W4H. They scored slightly lower than previous samples on the EAT, DEBQ-R and RSE, and somewhat higher on the BSQ and CDI.

Thirty-eight mothers and daughters participated in stage 2. The mothers had an average age of 42.75, and were very slightly over the 'healthy' BMI range (20-25). They had slightly lower scores on the EDBQ than previous samples, but had similar scores to those found previously on the EDE-Q and concern with daughter's weight scale. The average girls' age in stage 2 was 14.92, and they were slightly above the recommended 'healthy' W4H. They had a slightly lower mean EAT score than stage 1 participants, and slightly lower scores on some measures of parental influence, peer influence, and media influence measures than found in previous studies.

4.2.2 Hypothesis Testing

A discrete four-factor structure corresponding to the EDBQ sub-scales did not emerge. Instead, most items loaded quite highly onto more than one factor. One general factor, a NSB factor and a general "acceptance" factor could be discerned, although they were not discrete. The entire scale represented a highly internally consistent single factor, accounting for almost half of the variance. The total mean score was significantly

correlated with other measures of eating pathology and general measures of depression and self-esteem. EDBQ score was related to EAT, independent of depression, and related to CDI independent of eating disorder symptoms.

In stage 2, for all girls, the belief that being thin would make boys like them more, and the importance of magazines in determining their ideal body shape and how to achieve it, were significantly correlated with EAT score. There were differences in the variables that were significantly related to EAT score in younger and older girls. In the younger girls, variables measuring parental concern with daughters' weight and shape, and the messages received from peers about their weight and shape were significantly related to girls' EAT score. Internalisation of societal ideals was only significantly correlated with EAT score in the older girls.

The belief that being thin would make boys like them more (Likability – Boys) was the only significant predictor of EAT score for the whole sample, accounting for 57% of the variance. Differences emerged between the age groups. Likability – Boys was the only significant predictor in the younger girls, accounting for 88% of the variance in EAT scores, while in the older girls, internalisation of societal ideals was the only significant predictor to emerge, accounting for 33% of the variance. The ratio of participants to predictor variables however mean that these results should be treated cautiously.

4.3 Limitations of the study

4.3.1 Study design

The use of a cross-sectional research design precludes conclusions regarding causality in relation to any associations found. Longitudinal studies are required to determine causality, however this was beyond the scope of the current study.

4.3.2 Sample and response rate

The response rate (14.56% in stage 1) was poor, and may be due to a number of factors. Firstly, there were several questionnaires, which took around an hour to complete, which many girls may have considered too long. Secondly, the timing of distribution was not ideal, as one school changed this to the end of term without the researcher's knowledge. As a result, many girls may have lost the questionnaires over the holidays, thereby reducing the response rate. Thirdly, stage 1 questionnaires were completed anonymously therefore people could not be reminded to complete them. Finally, some of the questionnaires assess relatively sensitive issues, which may have dissuaded girls from completing them. Consequently, the sample was smaller than originally intended, and may be biased towards girls (and mothers) who were particularly concerned or interested in the issues being investigated. Caution must therefore be exercised in interpreting the data analysis results and generalising from the findings.

Alternative recruitment methods may have improved the response rate. Other studies (e.g. Conner et al, 1996) have asked girls to complete questionnaires under supervision. They also used an "opt-out" procedure (where all girls are given questionnaires and asked to complete them under supervision at that time). An "opt-in" procedure was used in the current study, which meant that the girls were given the questionnaires at school and had to actively choose to complete them on their own time then return them to school. This requires more effort from the girls (to remember to complete them etc) and is likely to have adversely influenced the response rate. While Conner et al obtained a 100% response rate, it was felt that this method would not allow an adequate opportunity for the girls to opt out. In addition, the local ethics committee encourages researchers to use opt-in procedures wherever possible (Oxfordshire Psychiatric Research Ethics Committee, 2000). An alternative may have been to distribute consent forms initially then ask those who consented (and whose parents did not object) to complete the questionnaires under supervision. This method has been used by e.g. French et al (1998) and produced response rates of 39% and 22% in two different schools.

4.3.3. Number of measures / hypotheses

In stage 2, there were several hypotheses concerning the relationships between different sociocultural factors and the girls' EAT score. This meant that several measures were required, which as noted above, may have adversely influenced the response rate. Consequently, it may also have affected the nature of the findings if, as suggested previously, the sample consisted of those girls and mothers who were more concerned/interested in the issues being studied. In addition, the power of the study is reduced by the ratio of measures/variables to participants, as a result of the small sample size.

Studies have focused previously on investigating the relationships between particular sociocultural factors such as peer (e.g. Oliver & Thelen, 1996) or parental (e.g. Smolak, Levine & Schermer, 1999) factors and children's eating disorder related concerns and behaviours. While this has the advantage of requiring the use of fewer measures, it cannot reveal which of the variables have the strongest associations with, and are most predictive of eating disorder related behaviours and concerns. The rationale for using several measures of different sociocultural factors in stage two was to allow a comparison of the relative importance of these different factors on the girls' eating disorder related behaviours and concerns. However, given the poor response rate and consequent small sample size, it may have been more appropriate to limit the number of hypotheses tested (thus the number of variables) and to focus on the relationships between the girls' EAT score and particular factors. The literature does not currently provide information on which factors have the strongest relationships with or are most predictive of eating disorder related concerns and behaviours, therefore selecting which factors to investigate (and which measures to include) at the design stage of the study would have been difficult in practice. One solution may have been at the data analysis stage to select those measures/factors with the highest correlations with EAT score e.g. the importance of magazine content for information about beauty, Likability – Boys, and Internalisation.

4.3.4. Data analysis

The poor response rate in stage 1 resulted in a smaller sample than originally intended. Although it was considered appropriate to conduct factor analysis and stepwise multiple regression, it is important to acknowledge that conclusions based on the analysis of data from smaller samples are less robust. In particular, the results of the regression analyses for the different age groups in stage two must be interpreted cautiously, given the small sample sizes and number of predictor variables involved. This analysis should be considered as exploratory, and requires replication in a larger sample before generalising from the results.

As noted previously, several measures of sociocultural factors were administered in stage two, which has implications for the data analysis and interpretation. Conducting large numbers of statistical tests increases the probability of finding a significant result purely by chance, where no real significant difference exists. While attempts were made to counter this, for example by imposing a stricter level of significance for the correlation analyses, the possibility of spurious significance must be borne in mind when interpreting the results. Reducing the number of hypotheses tested (and thus the number of correlation analyses conducted) may have been appropriate, in relation to this, given the sample size.

4.3.5 Cultural specificity

The vast majority of the participants were White. Differences have been found between e.g. Asian and Caucasian girls (Mumford et al, 1991) in the prevalence of disordered eating and weight concerns. The current findings cannot therefore be generalised to other cultural groups.

4.3.6 Significance of findings

Using non-parametric tests reduced the power of some analyses, e.g. in determining the relationships between predictor variables and EAT score/BMI. It is possible that some relationships approaching significance may have emerged as significant if parametric tests had been possible, or if a larger sample

had been obtained. The criterion-related validity of the EDBQ could also not be tested, as regression analysis was not possible in stage one. In addition, in stage 2, the variables entered into the regression analysis for the whole sample left over 40% of the variance unexplained, and for the older girls, almost two-thirds of the variance was left unexplained by the variables investigated. This suggests that other factors, not assessed here, might be important in predicting EAT score e.g. self-esteem (discussed below).

4.3.7. Theoretical framework

To date, no theoretical formulation has been proposed of how eating disorder related beliefs (e.g. as measured by the EDBQ) develop. The developmental perspective is a neglected area of research in cognitive theory, and models tend to be based on research in adults. Applying adult based models to children/adolescents without testing their validity may cause difficulties if (as suggested by the findings of stage 1 of the current study) there are differences between children/adolescents and adults in the core features proposed by cognitive models e.g. core beliefs. For example, the stage 1 findings suggest that adolescent girls do not have clearly differentiated beliefs relevant to eating disorders, as women have been found to, and girls may see them all as conceptually similar or equally important. Consequently, recommendations about clinical practice (particularly regarding implications for cognitive therapy with adolescents with eating disorders) must be made with this in mind. Cognitive models such as Garner & Bemis' (1985) model of AN regard particular beliefs concerning the importance of thinness for self-worth as central to the disorder, and therapy is based on this premise. In adolescent girls, core beliefs may not be so specific or clearly differentiated therefore therapy may have to be modified accordingly. For example, other beliefs may be equally important. While the current findings must be interpreted cautiously in light of the limitations noted above, they raise interesting issues regarding the applicability of adult cognitive models to adolescents with eating disorders. Further research may be needed into cognitive models of disorders specifically in adolescents.

4.3.8. Lack of a developmental perspective

As noted previously, the sample covered quite a wide age range. Some studies have found that self-esteem is particularly likely to decline in early adolescence (i.e. from 12 to 14 years; Bee, 2000). This seems to be linked to the stress of major life events such as changing schools or entering puberty. In adolescence, self-esteem has been found to be strongly negatively correlated with depression (e.g. Renouf & Harter, 1990). Both self-esteem and depression are implicated in the cause and maintenance of eating disorders, and in cognitive theory, both are linked to core beliefs. It is currently not known how factors such as self-esteem and mood are linked to the development of eating disorders. As many eating disorders begin in adolescence, this is an important area requiring further research.

In the current study, it is possible that factors such as self-esteem and mood varied markedly between the younger and older girls, thereby influencing the findings differently in the two groups. It is possible for example that those girls with lower self-esteem may have internalised societal standards of attractiveness to a greater degree, or may have been more influenced by beliefs that being thinner would make peers like them more. Factors such as self-esteem and mood may also have explained some of the variance in EAT score in stage 2. These factors were not assessed or entered into the regression equation in stage 2. Investigating the relationships between self-esteem, mood and such factors was not possible within the time constraints of the current study, but further analysis of this type is planned.

4.3.9. How the study could be done differently

Given the limitations of the study, there are a number of ways in which it may have been improved (as noted above). The following gives a summary of these. Firstly, a different recruitment method (e.g. asking those who consented to complete questionnaires under supervision) may have resulted in a larger sample. Testing fewer hypotheses and using fewer measures may also have improved the response rate, and would have improved the power of the data analysis. In addition, taking a more developmental perspective, and

exploring the relationships between self-esteem, mood and sociocultural factors with EAT score would have been informative.

4.4 Interpretation of the Results

4.4.1 Validity of the EDBQ in adolescent girls

The factor structure that emerged from the current data did not correspond to that found by M. Cooper et al (1997). Discrete factors did not emerge, and one general factor explained almost half of the variance. The entire scale emerged as a highly internally consistent single factor accounting for almost half of the variance. These findings suggest that in adolescent girls, the beliefs and assumptions assessed by the EDBQ are not clearly differentiated. Rather, girls may endorse all the beliefs to a similar degree, suggesting that they regard them as closely related, or as equally important. Particular beliefs e.g. regarding control over eating, may become more clearly differentiated or more salient as girls become older. The sample covered quite a wide age range therefore it would be interesting to run the factor analysis separately in different age groups to determine if a clearer factor structure emerges with older girls. Such analysis was not possible due to restricted sample size (and time/space constraints). The sample was also non-clinical, with only a minority scoring above the EAT cut-off point (although this does not indicate a diagnosis of AN). It is possible that in girls with eating disorders (or those with higher levels of sub-clinical symptoms) a clearer factor structure would emerge.

Despite lacking a clear factor structure, the entire scale had good convergent validity i.e. the beliefs assessed were associated with eating behaviour and eating disorder related symptoms. EDBQ scores were significantly correlated with other eating disorder measures, and measures of depression and self-esteem. The EDBQ was significantly related to EAT score independent of the level of depression. It was also significantly related to CDI score independent of the level of eating disorder symptoms. This suggests that depression and eating disorder related symptoms/behaviours are both related to the assumptions and beliefs assessed by the EDBQ. This may reflect M. Cooper et al's (1997) finding that the NSB sub-scale

significantly predicted depression level and thus appeared to measure generic beliefs associated with depression, while the other sub-scales appeared to be more specifically related to eating disorders. Although a discrete NSB factor did not emerge in the current study, ten NSB items had their highest loadings onto one factor in the original analysis, suggesting that these items were measuring a similar construct. This may partly explain the significant correlation with CDI when EAT was partialled out, although the other assumptions and beliefs also seem related to depression level in this sample.

Cognitive theory (e.g. Vitousek & Hollon, 1990) hypothesises that beliefs and assumptions (e.g. those measured by the EDBQ) underlie automatic thoughts, which drive eating disordered behaviours. Assessing assumptions and beliefs in people with eating disorders is therefore important in conceptualising individuals' difficulties and planning effective therapy. Given the prevalence of full and partial syndrome eating disorders in adolescents, developing a valid measure of these beliefs seems important. This initial data suggests that these assumptions and beliefs are associated with eating disorder related behaviours and symptoms in adolescent girls, but that they are not so clearly differentiated as in women. The results also suggest that the EDBQ may be useful for assessing such assumptions and beliefs in adolescent girls, but only of assumptions and beliefs overall. It does not appear to be useful as a measure of specific types of assumptions and beliefs, as these may be conceptually indistinct in this age group. These findings support Smolak's (1996) caution that simply adapting adult measures (by e.g. re-wording to aid understanding) for children/adolescents may preclude discovering how constructs change across development. If adult measures are used without testing that the same constructs are being measured, this may produce misleading results.

4.4.2 Influence of maternal modelling

The current study did not find strong evidence for maternal modelling of eating behaviours or eating disorder related symptoms. Mothers' beliefs and assumptions and level of dietary restraint were not significantly related to their daughters' EAT scores. This is in contrast to findings reported by M.Cooper & Burrows

(2001) in 11- to 12-year old girls. They found significant correlations (in their control group) between mothers' scores on the eating, shape and weight related EDBQ sub-scales and daughter's global concerns about weight, shape and eating. Differences in the measures used in the two studies may account for this. M.Cooper & Burrows (2001) assessed girls' *global concerns* (on the EDE – children's version; Bryant-Waugh, Cooper, Taylor, & Lask, 1996), whereas the EAT focuses more on *symptoms* e.g. eating behaviours. It would be interesting to investigate the relationship between mothers' and daughters' EDBQ scores. Alternatively, mothers' concerns may be more influential in younger girls. In the current study, EAT score was significantly related to the younger girls' perceptions of their mothers' investment in being thin i.e. girls who perceived that their mothers' investment in being thin was high, tended to have a higher EAT score. Similar findings were reported by Smolak et al (1999) in 9- to 11-year old girls, where maternal modelling of weight concerns and weight control were significantly related to daughters' weight loss attempts.

However, maternal modelling did not significantly predict girls' EAT score. This fits with the finding by Levine et al (1994) in 10- to 15-year old girls, where girls' perceptions of their mothers' investment in thinness was not a significant predictor of disturbed eating or drive for thinness. In the current study, consistent with previous research, the influence of maternal modelling was limited in the young girls, and not evident in the older girls.

4.4.3 Influence of parental involvement

In the younger girls, where parents were more involved through e.g. directly commenting on their daughters' weight and shape, daughters had higher EAT scores. Smolak et al (1999) found that maternal commenting on daughters' weight was significantly related to 9- to 11-year old girls' weight loss attempts, body-esteem and concern about gaining weight. In the current study maternal involvement was significantly correlated with (girls') BMI in the younger girls i.e. parents were more involved if their daughter had a higher BMI. These results may suggest that parental concern/involvement with their (higher BMI) daughter's weight and

shape may decrease as girls become older, or that parental concern has more influence on younger girls. In girls classified as 'serious' dieters, Huon et al (2000) found that parental influence (encouragement to lose weight and modelling) tended to decrease as girls became older.

The parental influence factors did not significantly predict EAT score. This differs from other studies where maternal commenting on daughters' weight significantly predicted girls' weight loss attempts (Smolak et al, 1999; Huon et al, 2000). However, attempting to lose weight is only one aspect measured by the EAT. This may account for the different findings. In the current study, while for younger girls parental involvement was related to eating disorder related symptoms, its influence was limited.

4.4.4 Peer influence

Peer interactions concerning eating, shape and weight were significantly correlated with EAT for all girls combined, as in Oliver & Thelen's (1996) study of 9- to 11-year olds. It was, however, not a significant predictor. Receiving negative messages about their weight and shape was significantly correlated with EAT score in the younger girls, but not significantly related to the girls' BMI. Thus it was not necessarily the girls with higher BMI who received more negative messages. In Oliver & Thelen's (1996) study, the significant relationships between messages received, and measures of eating and body image disturbance were lost when BMI was controlled for. The messages girls received was not a significant predictor in the current study. Levine et al (1994) reported that the frequency of 10- to 14-year old girls being teased by peers (i.e. receiving negative messages) about their weight and shape significantly predicted body dissatisfaction. The importance of receiving negative messages may be greater in younger girls, as suggested by the current findings.

The extent to which girls thought that being thin made them more likeable was an important factor. Likability – Boys had the highest correlation with EAT. In the younger girls, Likability – Boys and Likability – Girls were both significantly correlated with EAT score, whereas in the older girls, only Likability – Boys was. In

the older girls both were significantly related to BMI i.e. those with a higher BMI believed more strongly that being thin would make peers like them more. The relationship was independent of BMI in the younger girls. Likability – Boys was the only significant predictor for all girls combined, accounting for around half of the variance in EAT score. The strength of this factor as a predictor may partly explain why other variables did not emerge as significant. Oliver & Thelen (1996) also found that peer likability was the strongest predictor of children's (particularly girls') eating related concerns. However, around 45% of the variance in EAT score was not accounted for, suggesting that other factors (not measured here) are influential. In stage 1, the EDBQ was related to EAT score, therefore it would be interesting to analyse whether the girls' EDBQ score was a significant predictor. This was not possible in the current study.

When analysed according to age, Likability – Boys accounted for almost 90% of the variance in the younger girls' EAT scores (although these results must be regarded cautiously). It was not a significant predictor for the older girls. This suggests that its predictive power for the whole sample lies largely in its ability to account for variance in the younger girls' EAT scores. These findings may suggest that for young adolescent girls, their perception that being thin will make boys like them more is an important influence on their eating behaviours and attitudes, and that this is regardless of their actual body shape and weight. However, these results require replication in a larger sample before generalisations can be made. Research has shown that susceptibility and conformity to peer influence varies through adolescence, peaking at around 13-14 years then diminishing (Kimmel & Weiner, 1985), which fits with the current findings. Peer influence in the current study may result from a misperception by girls of what shape they believe boys will find attractive. This misperception has been reported in women, where men's ideal female figure was perceived as being thinner than actually reported by men (Fallon & Rozin, 1985). In the older girls, both peer and parental factors were less influential. This may be a reflection of the growth in independent thinking that occurs during adolescence, as individuals come to rely more on their own judgements rather than on advice from other people (Kimmel & Weiner, 1985).

4.4.5 Media influence

The extent to which magazines are an important source of information/ideals about an attractive body shape and how to achieve it was significantly correlated with EAT score for both age groups. Interest in emulating fashion models was only significantly correlated with EAT scores in the older girls. Neither were significant predictors of variance, suggesting that although related to EAT scores, their influence was limited. This partly contrasts with the findings of Levine et al (1994) who found that the extent to which magazines were an important source of information and ideals was the most significant predictor of disordered eating attitudes and behaviours. They also found, however, as in the current study that the level of interest in emulating fashion models was not a significant predictor. Frequency of exposure to media e.g. fashion magazines has been found to be significantly related to eating disorder symptomatology in women (e.g. Harrison & Cantor, 1997; Stice, Schupak-Neuberg et al, 1994). However, it has been hypothesised that this effect is due to the process of awareness and internalisation of societal ideals (Cusumano & Thompson, 1997). Exposure was not a significant influence in the current study.

4.4.6 Influence of awareness and internalisation of societal ideals

Internalisation (but not awareness) of societal ideals was significantly correlated with EAT score in both age groups. It was also a significant predictor in the older girls, accounting for a third of the variance in their EAT scores (although again this result must be interpreted cautiously). The finding that internalisation has a stronger relationship with eating, shape and weight concerns than awareness has been reported elsewhere (e.g. Heinberg et al, 1995; Cusumano & Thompson, 1997) for college women. This makes sense, as regardless of how aware of societal pressures girls/women are, problems would only be expected if these pressures had been accepted as something to be aspired to. This is the first attempt to explore these influences in adolescent girls. The findings suggest that as the girls get older, if they have internalised societal pressures, this may exert greater influence on their eating, shape and weight concerns, although the study requires replication on a larger sample.

Although internalisation was a significant predictor, it explained less variance than that explained by Likability – Boys in the younger girls. Over two thirds of the variance in EAT score was left unexplained in the older girls. This suggests that other factors (not measured here) are also important in determining eating disorder related symptoms in this age group. It was hypothesised previously that as girls become older, their beliefs and assumptions regarding eating, weight and shape may become more clearly differentiated, therefore it would be useful to analyse whether the EDBQ was differentially predictive of EAT score in different age groups.

To summarise, several of the sociocultural variables were found to be related to the girls eating behaviour and eating disorder related symptoms. Maternal modelling, parental involvement and negative messages from peers were more important influences in the younger girls sampled. Girls of all ages who saw magazines as important in determining the ideal body shape and how to achieve it were more likely to have higher EAT scores. The most influential predictor for the whole sample was Likability – Boys. This was especially true for the younger girls, in which it explained most of the variance in EAT score. Older girls who wanted to be like fashion models scored higher on the EAT, and the strongest predictor in this age group was the internalisation of societal ideals. In this age group however, a large proportion of variance was left unaccounted for. Due to the small sample size and number of predictor variables, the results (particularly of the regression analyses) should be treated cautiously, and require replication in a larger sample.

4.5 Clinical Implications

4.5.1 Use of the EDBQ

The results suggest that the EDBQ may be useful for assessing underlying assumptions and beliefs relevant to eating disorders in adolescent girls, but not for assessing specific types of beliefs. For the purposes of conceptualising difficulties and planning treatment with individuals, it may be more useful to analyse the pattern of beliefs that are strongly endorsed overall, as adolescent girls do not appear to see the sub-scales as conceptually distinct.

4.5.2 Treatment of eating disorders

The finding that EDBQ score was related to girls' EAT scores suggests that the assumptions and beliefs assessed are associated with their eating disorder related behaviours and symptoms. Cognitive techniques such as those outlined by Garner & Bemis (1985) and Fairburn et al (1986) for the treatment of AN and BN are may therefore be indicated for adolescent girls with eating disorders. These techniques would focus on modifying the maladaptive assumptions and beliefs endorsed by girls. However, as noted previously, caution must be exercised when applying cognitive therapy strategies (developed through work with adults) with adolescents, as there may be developmental differences in e.g. beliefs.

Girls' beliefs that they will be more popular (particularly with boys) if they are thinner may maintain eating disorders, and require challenging (as with other assumptions and beliefs). Alternatively (or additionally), working with girls on increasing self-esteem and self-acceptance may be helpful. Girls who consult magazines for information regarding the ideal body shape and how to achieve it tended to have higher EAT scores, as did older girls who wanted to be like fashion models. Education regarding the biased portrayal of girls and women in magazines and the impossibility of being like the models without using extreme measures may be useful. Similarly, girls who have internalised societal ideals and are attempting to pursue them may benefit from education about how realistic they are, and helped to place less emphasis on them to evaluate self-worth. Maternal modelling had some influence on the younger girls in the current study. If

girls with eating disorders see that their mothers highly value thinness, this may encourage them to think likewise. Working with the mother to reduce this influence may be indicated in some cases.

4.5.3 Prevention programmes

Increased knowledge about the risk factors for disordered eating has stimulated research and development into prevention programmes aimed at reducing the impact of factors e.g. the media portrayal of, and internalisation of the thin ideal. Psycho-educational prevention programmes focusing on e.g. symptoms of eating disorders and their consequences have generally been unsuccessful in reducing levels of disordered eating symptoms (Stice, Mazotti, Weibel & Agras, 2000). This may be a result of programmes not being specifically targeted at those experiencing difficulties, therefore being irrelevant to many participants. Some may even increase unhealthy weight regulation practices, by giving information about strategies e.g. vomiting (Stice et al, 2000). More recently, new approaches to eating disorder prevention have been developed. These will be discussed in relation to the current findings.

The current results suggest that in young adolescent girls particularly, their perception that being thin will make boys like them may be a risk factor for the development of disordered eating behaviours. Excessive concern for peer group acceptance may be a sign of poor self-esteem, therefore enhancing girls' self-esteem and self-acceptance (and reducing the focus on appearance) may diminish the need to conform to their perception of how they must look to be popular. A school-based self-esteem programme was found to reduce the importance of peer group acceptance in 11- to 14-year olds, with significant improvements in body satisfaction and weight loss behaviours reported (O'Dea & Abraham, 2000). Thus it seems that adolescents' susceptibility to peer group pressures can be modified, and may be useful in this age group.

For older girls, the internalisation of societal ideals may be a risk factor (amongst others). Studies have examined the efficacy of programmes aimed at helping girls/women to challenge sociocultural ideals (and therefore reduce the level of internalisation). Recently, a programme based on Stice's (1994) dual-pathway

model has been developed (Stice et al, 2000). The programme's aim was to reduce internalisation of the thin ideal, and the consequent body dissatisfaction, dieting, negative affect and bulimic behaviours, through a programme based on cognitive dissonance. Women who had already internalised the thin ideal were asked over three sessions to design a programme aimed at helping girls resist the thin ideal (thus producing dissonance in the women). Significant reductions in internalisation, body dissatisfaction, dieting, negative affect and bulimic symptoms were found in the intervention group. The programme's emphasis on cognitive change (and its apparent success evidenced by reduced internalisation) may account for its greater efficacy over psycho-educational programmes. Similar programmes in schools for girls with high levels of internalisation, body dissatisfaction and so on may be useful.

In the younger girls, internalisation was less influential. This may indicate that internalisation increases with age, or that the level stays the same, but other factors (e.g. likability) have more influence at younger ages. It may therefore be useful to target 'media literacy' programmes (aimed at teaching the critical evaluation of media messages and reducing their persuasive influence) at younger girls (Berel & Irving, 1998). Presenting such programmes before girls internalise societal ideals to a high degree, or before these ideals assume greater influence on their eating, shape and weight concerns may be most helpful. Tiggeman et al (2000) recommend peer-group based interventions, where girls have the opportunity to discuss together the mechanisms and influence of the media. It is hypothesised that this may be more effective in generating commitment to attitudinal and behavioural change than being given information by non-peers.

4.6 Suggestions for future research

As a result of the poor response rate and small sample, the results of both stages of the study require replication in a larger sample before the findings can be generalised.

The current findings suggest that in the adolescent girls sampled, the beliefs and assumptions assessed by the EDBQ are not clearly differentiated. In women, the four sub-scales of the EDBQ emerged as distinct

(although related) factors (M. Cooper et al, 1997). Given these findings, and the lack of a developmental perspective within cognitive theory research to date, it would be useful to replicate the study in girls of different ages. In this way, the possibility of there being a developmental progression from undifferentiated beliefs to the emergence of specific beliefs and assumptions related to the concerns assessed by the EDBQ could be explored. This would also give further insight into how valid the EDBQ is in different age groups.

The finding that the entire EDBQ scale represents a single internally consistent factor with all items loading highly onto it suggests that (in the current sample at least) the measure could be reduced to fewer items without compromising its usefulness in measuring assumptions and beliefs. This could make administration easier. Other measures e.g. the BSQ and EAT have been successfully shortened without compromising their psychometric robustness (Evans & Dolan, 1993), and it would be useful to investigate for the EDBQ.

Maternal beliefs were found not to be related to or predictive of the girls' EAT scores. This may be due to the differences in constructs being measured between the girls (predominantly symptoms) and mothers (assumptions and beliefs). It would be useful to determine the relationship between girls' and mothers' beliefs, to establish whether there is evidence for maternal modelling. However, given the lack of clear subscales when the EDBQ is administered to girls, this may be difficult. It would be interesting to determine whether girls' beliefs predict unique variance in EAT when other variables e.g. Likability – Boys are controlled for. If girls' beliefs become more differentiated as they become older (and if, as suggested by this study, parental factors become less influential) these assumptions and beliefs may become more predictive of their eating disorder related attitudes and behaviours. This could be investigated in girls of different ages.

In the older girls, two-thirds of variance in EAT score was left unaccounted for, suggesting that other factors (not measured here) were influential. As noted above, the contribution of assumptions and beliefs could be investigated. The influence of self-esteem may also have been useful to investigate, given its importance in theories of eating disorders (e.g. Fairburn et al, 1999; Stice, 1994).

As noted earlier, longitudinal studies are required in order to draw conclusions regarding causality in terms of associations between self-esteem, mood, sociocultural factors and eating disorder related concerns and behaviours. Studies of different cultural groups are also important, in order to identify which factors are influential for different cultures, and allow prevention and treatment efforts to be tailored accordingly.

4.7 Conclusions

The EDBQ was found to have a different factor structure in the sample of adolescent girls to that previously found in women. The girls' beliefs were not clearly differentiated, however the assumptions and beliefs assessed by the EDBQ were associated with their eating disorder related behaviours and symptoms. Maternal modelling of shape and weight concerns and social reinforcement of the thin ideal through parental involvement in girls' weight and shape had a limited influence on the younger girls EAT score, but not the older girls'. Peer influences, particularly the belief that being thin will make boys like them more were the most influential factors for the younger girls. Internalisation of societal ideals was the strongest predictor of EAT variance (of the variables studied) for the older girls. In this age group however, other variables (not investigated here) also seem to be important in influencing eating disorder related behaviours and symptoms. Caution is called for in interpreting the results, due to the small sample size.

5.0 REFERENCES

- Abraham, S. & O'Dea, J.A. (2001). Body mass index, menarche, and perception of dieting among peripubertal adolescent females. *International Journal of Eating Disorders*, 29, 23-28.
- Allison, D.B. (1995). Assessment for eating and weight problems. In Allison, D.B. (Ed). *Handbook of Assessment Methods for Eating Behaviours and Weight-Related Problems. Measures, Theory & Research*. London: Sage Publications.
- Audit Bureau of Circulations (2000). *Magazine Circulation Information*. www.ABC.org.uk.
- Balaam, B.J. & Haslam, S.A. (1998). A closer look at the role of social influence in the development of attitudes to eating. *Journal of Community and Applied Social Psychology*, 8(3), 196-212.
- Banasiak, S.J., Wertheim, E.H., Koerner, J., & Voudouris, N.J. (2001). Test-retest reliability and internal consistency of a variety of measures of dietary restraint and body concerns in a sample of adolescent girls. *International Journal of Eating Disorders*, 29, 85-89.
- Bandura, A. (1969). Social-learning theory of identificatory processes. In Goslin, D.A. (Ed.). *Handbook of Socialization Theory and Research*. Chicago: Rand McNally.
- Beck, A.T. (1976). *Cognitive theory and the Emotional Disorders*. New York: International Universities Press.
- Bee, H. (2000). *The Developing Child*.
- Bemis Vitousek, K. & Orimoto, L. (1993). Cognitive behavioural models of anorexia nervosa, bulimia nervosa, and obesity. In Dobson, K.S. & Kendall, P.C.(Eds.). *Psychopathology and Cognition*. New York: Academic Press Inc.
- Berel, S & Irving, L.M. (1998). Media and disturbed eating: An analysis of media influence and implications for prevention. *The Journal of Primary Prevention*, 18(4), 415-430.
- British Medical Association (2000). *Eating Disorders, Body Image and the Media..* London: British Medical Association.
- Bryant-Waugh, R., Cooper, P.J., Taylor, C.L., & Lask, B.D. (1996). The use of the eating disorder examination with children: A pilot study. *International Journal of Eating Disorders*, 19(4), 391-397.
- Byely, L., Bastiani Archibald, A., Graber, J., & Brooks-Gunn, J. (2000). A prospective study of familial and social influences on girls' body image and dieting. *International Journal of Eating Disorders*, 28, 155-164.
- Cole, T.J. (1979). A method of assessing age-standardised weight-for-height in children seen cross-sectionally. *Annals of Human Biology*, 6, 249-268.
- Cole, T.J., Freeman, J.V., & Preece, M.A. (1995). Body mass index reference curves for the UK, 1990. *Archives of Disease in Childhood*, 73, 25-29.
- Coleman, D. & Salt, J. (Eds.) (1996). *Ethnicity in the 1991 Census Volume 1. Demographic Characteristics of the Ethnic Minority Populations*. London: OPCS.

- Conner, M., Martin, E., Silverdale, N. & Grogan, S. (1996). Dieting in adolescence: An application of the theory of planned behaviour. *British Journal of Health Psychology*, 1, 315-325.
- Cooper, M. (1997). Cognitive theory in anorexia nervosa and bulimia nervosa: A review. *Behavioural and Cognitive Psychotherapy*, 25, 113-145.
- Cooper, M.J. & Fairburn, C.G. (1992). Thoughts about eating, weight and shape in anorexia nervosa and bulimia nervosa. *Behaviour Research & Therapy*, 30, 501-511.
- Cooper, M., Cohen-Tovee, E., Todd, G., Wells, A., & Tovee, M. (1997). The Eating Disorder Belief Questionnaire: Preliminary development. *Behaviour Research & Therapy*, 35(4), 381-388.
- Cooper, M. & Hunt, J. (1998). Core beliefs and underlying assumptions in bulimia nervosa and depression. *Behaviour Research & Therapy*, 36, 895-898.
- Cooper, M., Todd, G., & Wells, A. (1998). Content, origins, and consequences of dysfunctional beliefs in anorexia nervosa and bulimia nervosa. *Journal of Cognitive Psychotherapy*, 12, 213-230.
- Cooper, M. & Turner, H. (2000). Underlying assumptions and core beliefs in anorexia nervosa and dieting. *British Journal of Clinical Psychology*, 39(2), 215-218.
- Cooper, M. & Burrows, A. (2001). Underlying assumptions and core beliefs related to eating disorders in the mothers of overweight girls. *Behavioural & Cognitive Psychotherapy*, 29(2), 143-149.
- Cooper, P.J., Taylor, M.J., Cooper, Z., & Fairburn, C.G. (1987). The development and validation of the Body Shape Questionnaire. *International Journal of Eating Disorders*, 6(4), 485-494.
- Cooper, P.J. & Goodyer, I. (1997). Prevalence and significance of weight and shape concerns in girls aged 11-16 years. *British Journal of Psychiatry*, 171, 542-544.
- Cooper, Z., Cooper, P.J., & Fairburn, C.G. (1989). The validity of the Eating Disorder Examination and its subscales. *British Journal of Psychiatry*, 154, 807-812.
- Cusumano, D.L. & Thompson, J.K. (1997). Body image and body shape ideals in magazines: Exposure, awareness and internalization. *Sex Roles*, 37, 701-721.
- Evans, C. & Dolan, B. (1993). Body shape questionnaire: Derivation of shortened "alternate forms". *International Journal of Eating Disorders*, 13(3), 315-321.
- Everitt, B.S. (1975). Multivariate analysis: The need for data and other problems. *British Journal of Psychiatry*, 126, 237-240.
- Fairburn, C.G., Cooper, Z., & Cooper, P.J. (1986). The clinical features and maintenance of bulimia nervosa. In Brownell, K.D. & Foreyt, J.P. (Eds.). *Physiology, Psychology and Treatment of the Eating Disorders*. New York: Basic Books.
- Fairburn, C.G. & Beglin, S.J. (1994). Assessment of eating disorders: Interview or self-report questionnaire? *International Journal of Eating Disorders*, 16(4), 363-370.
- Fairburn, C.G., Shafran, R., & Cooper, Z. (1999). A cognitive-behavioural theory of anorexia nervosa. *Behaviour Research and Therapy*, 37, 1-13.

- Fallon, A.E. & Rozin, P. (1985). Sex differences in perceptions of desirable body shape. *Journal of Abnormal Psychology*, 94(1), 102-105.
- Field, A.E., Camargo, C.A., Barr Taylor, C., Berkey, C.S., & Colditz, G.A. (1999). Relation of peer and media influences to the development of purging behaviours among preadolescent and adolescent girls. *Archives of Pediatric Adolescent Medicine*, 153, 1184-1189.
- Franko, D.L. & Zuroff, D.C. (1992). The Bulimic Automatic Thoughts Test: Initial reliability and validity data. *Journal of Clinical Psychology*, 48, 505-509.
- French, S.A., Peterson, C.B., Story, M., Anderson, N., Pederson Mussell, M., & Mitchell, J.M. (1998). Agreement between survey and interview measures of weight control practices in adolescents. *International Journal of Eating Disorders*, 23, 45-56.
- Garfinkel, P.E. & Garner, D.M. (1982). *Anorexia Nervosa: A Multidimensional Perspective*. New York: Brunner/Mazel.
- Garner, D.M. & Garfinkel, P.E. (1979). The Eating Attitudes Test: an index of the symptoms of anorexia nervosa. *Psychological Medicine*, 9, 273-279.
- Garner, D.M. & Bemis, K.M. (1982). A cognitive-behavioural approach to anorexia nervosa. *Cognitive Therapy and Research*, 6, 123-150.
- Garner, D.M. & Bemis, K.M. (1985). Cognitive therapy for anorexia nervosa. In Garner, D.M. & Garfinkel, P.E. (Eds.) *Handbook of Psychotherapy for Anorexia Nervosa and Bulimia*. New York: The Guildford Press.
- Gibbs, R.E. (1986). Social factors in exaggerated eating behaviour among high school students. *International Journal of Eating Disorders*, 5(6), 1103-1107.
- Guidano, V.F. & Liotti, G. (1983). *Cognitive Processes and Emotional Disorders: A Structural Approach to Psychotherapy*. New York: Guildford Press.
- Harrison, K. & Cantor, J (1997). The relationship between media consumption and eating disorders. *Journal of Communication*, 47(1), 40-67.
- Heinberg, L.J., Thompson, J.K., & Stormer, S. (1995). Development and validation of the Sociocultural Attitudes Towards Appearance Questionnaire. *International Journal of Eating Disorders*, 17(1), 81-89.
- Hill, A.J., Weaver, C. & Blundell, J.E. (1990). Dieting concerns of 10-year-old girls and their mothers. *British Journal of Clinical Psychology*, 29, 346-348.
- Hill, A.J., Oliver, S., & Rogers, P.J. (1992). Eating in the adult world: The rise of dieting in childhood and adolescence. *British Journal of Clinical Psychology*, 31, 95-105.
- Huon, G.F., Lim, J., & Gunewardene, A. (2000). Social influences and female adolescent dieting. *Journal of Adolescence*, 23, 229-232.
- Irving, L.M. (1990). Mirror images: Effects of the standard of beauty on women's self and body-esteem. *Journal of Social & Clinical Psychology*, 9, 230-242.

- Kimmel, D.C. & Weiner, I.B. (1985). *Adolescence: A Developmental Transition (2nd Edition)*. New York: John Wiley & Sons.
- Knight, D., Hensley, V.R., & Waters, B. (1988). Validation of the Children's Depression Scale and the Children's Depression Inventory in a prepubertal sample. *Journal of Child Psychology & Psychiatry*, 29(6), 853-863.
- Kovacs, M. (1981). Rating scales to assess depression in school-aged children. *Acta Paedopsychiatrica*, 46, 305-315.
- Leung, N., Waller, G., & Thomas, G. (1999). Core beliefs in anorexic and bulimic women. *The Journal of Nervous & Mental Disease*, 187(12), 736-741.
- Levine, M.P. & Smolak, L. (1996). Media as a context for the development of disordered eating. In Smolak, L., Levine, M.P., & Striegel-Moore, R. *The Developmental Psychopathology of Eating Disorders. Implications for Research, Prevention, and Treatment*. New Jersey: Lawrence Erlbaum Associates.
- Levine, M.P. & Smolak, L. (1998). The mass media and disordered eating: Implications for primary prevention. In Vandereycken, W. & Noordenbos, G. (Eds.) *The Prevention of Eating Disorders*. London: The Athlone Press.
- Levine, M.P., Smolak, L., & Hayden, H. (1994). The relation of sociocultural factors to eating attitudes and behaviours among middle school girls. *Journal of Early Adolescence*, 14(4), 471-490.
- Mallick, M.J. (1983). Health hazards of obesity and weight control in children: A review of the literature. *American Journal of Public Health*, 73, 78-82.
- Markus, H. (1977). Self-schemata and processing information about the self. *Journal of Personality & Social Psychology*, 35, 63-78.
- Mizes, J.S. (1988). Personality characteristics of bulimic and non-eating disordered female controls: a cognitive behavioural perspective. *International Journal of Eating Disorders*, 7, 541-550.
- Mizes, J.S. (1992). Validity of the Mizes Anorectic Cognitions Scale: A comparison between anorectics, bulimics, and psychiatric controls. *Addictive Behaviours*, 17, 283-289.
- Mizes, J.S. & Klesges, R.C. (1989). Validity, reliability and factor structure of the Anorectic Cognitions Questionnaire. *Addictive Behaviours*, 14, 589-594.
- Moreno, A. & Thelen, M.H. (1993). Parental factors related to bulimia nervosa. *Addictive Behaviours*, 18, 681-689.
- Mumford, D.B., Whitehouse, A.M., & Platts, M. (1991). Sociocultural correlates of eating disorders among Asian schoolgirls in Bradford. *British Journal of Psychiatry*, 158, 222-228.
- Murray, S.H., Touyz, S.W., & Beumont, P.J.V. (1996). Awareness and perceived influence of body ideals in the media: A comparison of eating disorder patients and the general community. *Eating Disorders*, 4(1), 33-46.

- O'Dea, J.A. & Abraham, S. (2000). Improving the body image, eating attitudes, and behaviours of young male and female adolescents: A new educational approach that focuses on self-esteem. *International Journal of Eating Disorders*, 28, 43-57.
- Office of Population Censuses and Statistics (1991). *Standard Occupational Classification Volume 3*. London: HMSO.
- Ogden, J. & Steward, J. (2000). The role of the mother-daughter relationship in explaining weight concern. *International Journal of Eating Disorders*, 28, 78-83.
- Oliver, K.K. & Thelen, M.H. (1996). Children's perceptions of peer influence on eating concerns. *Behaviour Therapy*, 27, 25-39.
- Oxfordshire Psychiatric Research Ethics Committee (2000). *Notes for Investigators*.
- Palmer, R. (2000). *Helping People with Eating Disorders. A Clinical Guide to Assessment and Treatment*. Chichester: John Wiley & Sons.
- Patton, G.C., Johnson-Sabine, E., Wood, K., Mann, A.H., & Wakeling, A. (1990). Abnormal eating attitudes in London schoolgirls – A prospective epidemiological study: Outcome at 12 months follow-up. *Psychological Medicine*, 20, 383-394.
- Patton, G.C., Carlin, J.B., Shao, Q., & Hibbert, M.E. (1997). Adolescent dieting: Healthy weight control or borderline eating disorder? *Journal of Child Psychology & Psychiatry & Allied Disciplines*, 38(3), 299-306.
- Paxton, S.J., Schutz, H.K., Wertheim, E.H., & Muir, S.L. (1999). Friendship clique and peer influences on body-image concerns, dietary restraint, extreme weight-loss behaviours, and binge eating in adolescent girls. *Journal of Abnormal Psychology*, 108(2), 255-266.
- Pike, K.M. & Rodin, J. (1991). Mothers, daughters and disordered eating. *Journal of Abnormal Psychology*, 100(2), 198-204.
- Polivy, J. & Herman, C.P. (1995). Dieting and its relation to eating disorders. In Brownell, K.D. & Fairburn, C.G. (Eds). *Eating Disorders and Obesity. A Comprehensive Handbook*. New York: Guildford Press.
- Pugliese, H.T., Lifschitz, F., Grad, G., Fort, P. & Marks-Katz, M. (1983). Fear of obesity: A case of short stature and delayed puberty. *New England Journal of Medicine*, 309, 513-518.
- Renouf, A.G., & Harter, S. (1990). Low self-worth and anger as components of the depressive experience in young adolescents. *Development and Psychopathology*, 2, 293-310.
- Rorty, M., Yager, J., Rossotto, E., & Buckwalter, G. (2000). Parental intrusiveness in adolescence recalled by women with a history of bulimia nervosa and comparison women. *International Journal of Eating Disorders*, 28, 202-208.
- Rose, D. & Pevalin, D. (2001). *The National Statistics Socio-economic Classification – Genesis and Overview*. London: ONS.
- Rosenberg, M. (1965). *Society and the Adolescent Self-Image*. Princeton: Princeton University Press.

- Ruther, N.M. & Richman, C.L. (1993). The relationship between mothers' restrained eating and their children's attitudes and behaviour. *Bulletin of the Psychonomic Society*, **31**(3), 217-220.
- Saylor, C.F., Spirito, A., Finch, A.J., & Bennett, B. (1984). The Children's Depression Inventory: A systematic evaluation of psychometric properties. *American Psychologist*, **52**(6), 955-967.
- Schwartz, D.J., Phares, V., Tantleff-Dunn, S. & Thompson, J.K. (1999). Body image, psychological functioning, and parental feedback regarding physical appearance. *International Journal of Eating Disorders*, **25**, 339-343.
- Shisslak, C.M., Crago, M., Gray, N., Estes, L.S., McKnight, K., Parnaby, O.G., Sharpe, T., Bryson, S., Killen, J., & Barr Taylor, C. (1998). The McKnight Foundation prospective study of risk factors for the development of eating disorders. In Vandereycken, W. & Noordenbos, G. (Eds.) *The Prevention of Eating Disorders*. London: The Athlone Press.
- Silverstein, B., Peterson, B., & Perdue, L. (1986). Some correlates of the thin standard of bodily attractiveness for women. *International Journal of Eating Disorders*, **5**, 895-905.
- Smolak, L. (1996). Methodological implications. In Smolak, L., Levine, M.P., & Striegel-Moore, R. (Eds.), *The Developmental Psychopathology of Eating Disorders. Implications for Research, Prevention and Treatment*. New Jersey: Lawrence Erlbaum Associates.
- Smolak, L. & Levine, M.P. (1996). Adolescent transitions and the development of eating problems. In Smolak, L., Levine, M.P., & Striegel-Moore, R. *The Developmental Psychopathology of Eating Disorders. Implications for Research, Prevention, and Treatment*. New Jersey: Lawrence Erlbaum Associates.
- Smolak, L., Levine, M.P., & Schermer, F. (1999). Parental input and weight concerns among elementary school children. *International Journal of Eating Disorders*, **25**, 263-271.
- Stice, E. (1994). Review of the evidence for a sociocultural model of bulimia nervosa and an exploration of the mechanisms of action. *Clinical Psychology Review*, **14**, 633-661.
- Stice, E. (1998). Modeling of eating pathology and social reinforcement of the thin-ideal predict onset of bulimic symptoms. *Behaviour Research & Therapy*, **36**, 931-944.
- Stice, E. & Shaw, H.E. (1994). Adverse effects of the media portrayed thin-ideal on women and linkages to bulimic symptomatology. *Journal of Social & Clinical Psychology*, **13**, 288-308.
- Stice, E., Schupak-Neuberg, E., Shaw, H.E., & Stein, R.I. (1994). Relation of media exposure to eating disorder symptomatology: An examination of mediating mechanisms. *Journal of Abnormal Psychology*, **103**(4), 836-840.
- Stice, E., Mazotti, L., Weibel, D. & Agras, W.S. (2000). Dissonance prevention program decreases thin-ideal internalisation, body dissatisfaction, dieting, negative affect, and bulimic symptoms: A preliminary experiment. *International Journal of Eating Disorders*, **27**, 206-217.
- Striegel-Moore, R.H., & Cachelin, F.M. (1999). Body image concerns and disordered eating in adolescent girls: Risk and protective factors. In Johnson, N.G., Roberts, M.C., & Worell, J. (Eds.). *Beyond Appearance: A New Look at Adolescent Girls*. Washington DC: American Psychological Society.

- Thelen, M.H. & Cormier, J.F. (1995). Desire to be thinner and weight control among children and their parents. *Behaviour Therapy*, 26, 85-99.
- Tiggeman, M., Gardiner, M., & Slater, A. (2000). "I would rather be size 10 than have straight A's": A focus group study of adolescent girls' wish to be thinner. *Journal of Adolescence*, 23, 645-659.
- van Strien, T., Frijters, J.E.R., Bergers, G.P.A., & Defares, P.B. (1986). The Dutch Eating Behaviour Questionnaire (DEBQ) for assessment of restrained, emotional, and external eating behaviour. *International Journal of eating Disorders*, 5(2), 295-315.
- Vitousek, K.B. & Hollon, S. (1990). The investigation of schematic content and processing in eating disorders. *Cognitive Therapy and Research*, 14, 191-214.
- Waller, G., Ohanian, V., Meyer, C., & Osman, S. (2000). Cognitive content among bulimic women: The role of core beliefs. *International Journal of Eating Disorders*, 28, 235-241.
- Wertheim, E.H., Paxton, S.J., Schutz, H.K., & Muir, S.L. (1997). Why do adolescent girls watch their weight? An interview study examining sociocultural pressures to be thin. *Journal of Psychosomatic Research*, 42(4), 345-355.
- Williamson, D.A., Anderson, D.A., Jackman, L.P., & Jackson, S.R. (1995). Assessment of eating disordered thoughts, feelings and behaviours. In Allison, D.B. (Ed). *Handbook of Assessment Methods for Eating Behaviours and Weight-Related Problems. Measures, Theory & Research*. London: Sage Publications.
- Wilson, G.T. & Fairburn C.G. (1993). Cognitive treatments for eating disorders. *Journal of Consulting & Clinical Psychology*, 61(2), 261-269.
- Young, J.E. (1994). *Cognitive Therapy for Personality Disorders: A Schema-Focused Approach*. 2nd Edition. Sarasota: Professional Resource Press.

PAGES
EXCLUDED
UNDER
INSTRUCTION
FROM
UNIVERSITY